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SPECIAL FEATURES

The Fun Of Houseboating ..... ***George Laycock*** 53
Can Mind-Reading End Wars? ..... ***Lester David*** 60
You Can Make Money-In-A-Minute ..... ***Lyman Gaylord*** 65
The Small, *Small* Car Story ..... ***Gordon Wilkins*** 70

TOM McCAHILL

Mail For McCahill 43
Tests The Facel-Vega 86
Tests The Mercury 90

REGULAR FEATURES

Now See This! 59, 68, 76, 89
Bright Idea: Clicker Quik-Chek 62
It's New! 78
Hunting & Fishing: Hot Weather Fishing ..... ***Wynn Davis*** 82
MIMI 83
Inventions Wanted! 95

SHORT FEATURES

Home Electricity Won't Cost A Dime 21
Copter Costs Less Than A Car 58
65 Days In The Air 63
Cow Pony De Luxe 64
Her Hobby Is Horses 69
Guns That Fly 74
Antique Bikes 77
UHF Flying Model 84
Warning—Skin Divers Below! 93
Leathernecks' Fuel Farm 94
1908 Rolls-Royce 96

DEPARTMENTS

Invention Clinic 12
Patents Granted 15
Dear Editor 16
It's Coming! 50

HOME-CRAFTS-SHOP CONTENTS ON PAGE 6

JULY, 1959

VOLUME 95, NUMBER 7

Cover photo by Tom McCahill

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MECHANIX ILLUSTRATED is published monthly by Fawcett Publications, Inc., Fawcett Bldg., Greenwich, Conn.

ADDRESS ALL MAIL: Subscriptions, change of address, Form 3579 to Circulation Dept., Fawcett Bldg., Greenwich, Conn.; and all editorial and advertising to Fawcett Publications, Inc., 67 W. 44th St., New York 36, N. Y.

Second-class postage paid at Greenwich, Conn., and at additional mailing offices.

EDITORIAL OFFICES: 67 W. 44th St., New York 36, N. Y. ADVERTISING OFFICES: 67 W. 44th St., New York 36, N. Y.; 612 N. Michigan Ave., Chicago 11, Ill.; 1659 Guardian Bldg., Detroit 26, Mich.; 2978 Wilshire Blvd., Los Angeles 5, Calif.; 681 Market St., San Francisco 5, Calif.; 123 S. Broad St., Philadelphia 9, Pa.; Hale Printup & Associates, Langford Bldg., Miami 32, Fla. and 4667 Haverhill Dr., N.W., Atlanta, Ga.

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SUBSCRIPTION PRICE: 25c a copy. $3.00 a year in U.S., possessions and Canada. All other countries $6.00 a year. Subscription price to members of the armed forces $2.75 per year. Foreign subscriptions and sales should be remitted by International Money Order in U.S. funds payable at Greenwich, Conn.

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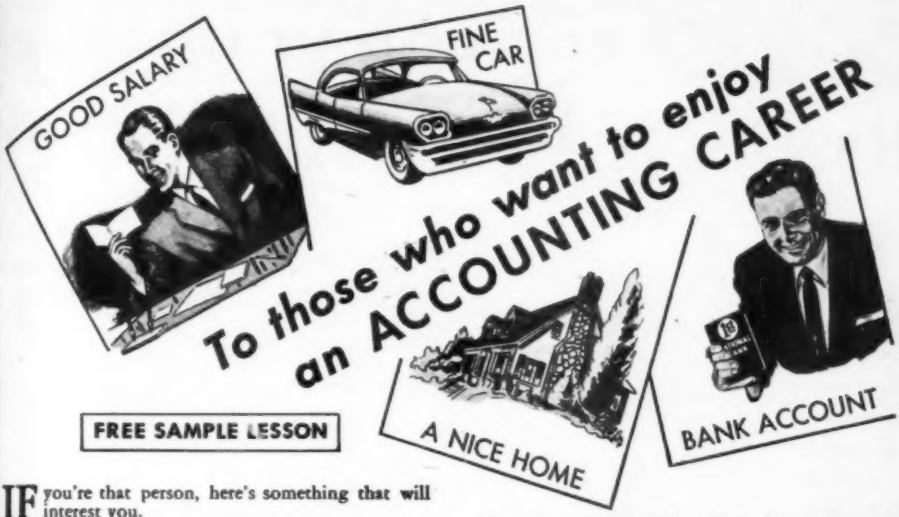

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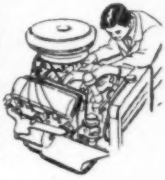

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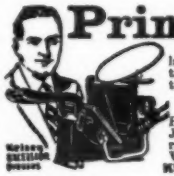

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Invention Clinic

Joseph H. Kraus

In this column each month Mr. Kraus will answer as many letters as space permits on those subjects he feels to be of widest general interest. Time does not allow him to reply to any letters except those printed here. Address your questions to the Invention Clinic, *Mechanix Illustrated*, 67 West 44 St., New York 36, N. Y.

Substitute For Ice

A. H. Santana of Baltimore, Md., writes: "It is over ten years since you invited me to exhibit at the Inventors International Exhibition in New York. I had some good breaks but due to business inexperience I lost out." He then outlines a system for producing an artificial skating ice. Is it any good?

It is too bad that the Inventors International Exhibition didn't become an annual activity. But it costs a lot of money to run these things, and it was our feeling that the inventor, who in a sense is the star of such a show, should not be required to pay for his performance. A show of that type needs a benefactor.

Your artificial ice: many inventors have worked along this line. No one has come anywhere close to producing a composition which will substitute for ice. Your material cuts too easily; try it and see. The experiment is inexpensive.

INVENTOR'S TIP OF THE MONTH

Much energy is dissipated when you stop a car. Gas and oil are wasted while the engine idles at stop lights or in heavy traffic, to say nothing about unproductive engine wear. Why not develop a system to store energy from the braking operation, and convert it into a quick start of the engine and also to impart initial forward motion. Then the engine would stop automatically when you brake and it would start up again instantly. Interlocking safety devices should be included.

Outboard Motor Carrier

R. J. Ponter of Arlington Heights, Ill., h an outboard motor carrier that would co $6.50 to manufacture. He is having troub getting this idea off the ground. Is he caterin to too limited a market? Is the cost too hig Is there a need for a carrier for heav motors?

Anyone who expects to stay in busine must sell a product for about five times ma facturing cost. Would you pay $25 to $32 f your carrier even though it appears to be ne simple and useful? You have a further lim tation in the market by the fact that whee carriers are useless over sand, marsh, h and rocks. I suggest that you check more co pletely into your manufacturing costs. As f heavier motors, most people who have th leave them on their boats. Except for lea your product seems strong enough for t heaviest motor. A bottom crossbrace mig strengthen the frame, provide a shaft for t wheels, and cut costs. With proper promoti and launching you should be able to put th idea across.

Easy Opening Envelope

Everett H. Yost of Douglas, Wyo., send packet of envelopes with an opening str affixed under the flap of each. Is it wor patenting?

This is one of the earliest patents issued b the U. S. Patent Office. Since then many di ferent versions have been protected, mos to prevent the extended string or tab fro messing the mechanisms in mail-cancelli machinery.

[*Continued on page* 14]

INVENTORS

If you believe that you have an invention, you should find out how to protect it. The first step is to have a search made of the prior pertinent U. S. patents. If a report on this search indicates that the invention appears patentable you can apply for a patent, and the specifications and claims should be prepared.

The firm of McMorrow, Berman & Davidson, with offices in Washington, D. C., is qualified to take the necessary steps for you. We can make a preliminary search on your invention, advise you whether we think it can be patented, and prepare your application for patent.

Unless you are fully familiar with the U. S. Patent Laws, we recommend that you engage the services of a Registered Patent Attorney to protect your interests. The patent laws are *your* laws. A patent gives you the right to prevent others from making, using or selling the invention claimed in your patent for a period of 17 years.

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Invention Clinic

[Continued from page 12]

Agricultural Devices

Arthur L. Fisher of Butler, Pa., sends copies of his patents on a system for keeping a grain combine level on hills to prevent spillage and also a means for automatically controlling the volume of air from a blower while the machine is moving at different speeds due to ground conditions. What manufacturer would be interested?

Both of these inventions appear to be good. How good they are in comparison with others remains to be established. As there are only 42 manufacturers of harvesters, and only nine of these with a capitalization of $1,000,000 or more, it might be well for you to write to each to learn their reactions.

Carbon Paper Problem

Larry A. Pocorena of Bakersfield, Calif., writes: "Apparently someone already has faced the carbon paper problem, as we have been using these forms for quite some time." He includes four of the forms.

Many organizations find it necessary to make as many as 12 or more copies. The forms you sent will not produce that number of readable copies, and they smudge. The problem is still there to be solved.

Fully Variable Transmission

S. L. Jenkins of Rolla, Mo., has designed a fully variable transmission which has a 100 per cent speed-power ratio. It is fully mechanical. Has such an idea been proposed before? If so, what was wrong with it?

It just is not possible to transmit 100 per cent of the power through any transmission system. At least 60 fully mechanical methods for producing a fully variable transmission have been patented. One of them was found on autos and trucks many years ago. It also included a variable speed reverse. But if you feel you have something worthwhile and marketable, I suggest that you get your attorney to report on a search. •

INVENTORS

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GUSTAVE MILLER
79-MI Warner Building
Washington 4, D. C.

REGISTERED PATENT ATTORNEY
ASSOCIATE EXAMINER U. S. PAT. OFF. 1922-1929
Patent Attorney & Adviser U. S. NAVY DEPT. 1938-1947
PATENT LAWYER

PATENTS GRANTED

FLASHING on and off or remaining constant, the battery-powered warning light, invented by Wayne S. Evans, Jr., of Huntingdon, Pa., for the tip of umbrellas, should hearten potential eye-jabbers everywhere on dark, rainy nights. Mr. Evans assigned the rights, patent 2,878,366, to S. W. Evans & Son of Philadelphia.

A gentle squeeze by Junior and the musical blocks invented by Mark Page of Great Neck, N. Y., produce a musical pitch on the scale. The blocks, designed as an educational toy for children, bear letters designating their tones. Mr. Page won patent 2,879,685.

Peter E. Holtsch of Wiesbaden, Germany, has devised a pushbutton machine that lights cigarettes by an electric coil and then partially ejects and holds the lighted smoke until the customer pulls it out of the machine. The lazy man's lighter took patent 2,878,960.

A trough where the hood usually meets the windshield is the secret of the windshield wiper invented by Bela Barenyi and Karl Wilfert of Germany. The windshield wiper is designed to do a more efficient clearing job, especially with snow which is carried off by the trough. The inventors got patent 2,880,444.

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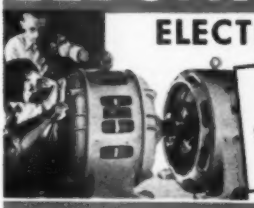

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• *Shaggy Dog*

In the April MI on page 101 you had a picture of a cute dog. I would like to know four things about it. What kind of dog is it? How much does he cost? Where could I get a dog like that? Is that how big he will be the rest of his life?

(Miss) Dale Alexy
Chandler, Ariz.

In the words of an expert, "Hairy terriers that young are hard to tell apart, without documentation." And we have none—only the photo of a Mystery Pup. All we can say to you and the others who wrote in with the same requests is that if our daughter were to demand a dog "just like that," we would buy her a Cairn—on condition that her algebra shows improvement. She would never know the difference. We now turn you over to Dog World, 3323 Michigan Blvd., Chicago 16, Ill. That magazine is full of kennel ads. Price should be in the $35-$100 range. The dog will grow up but will retain that beseeching look.

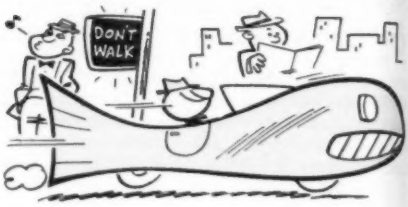
• *Words Of One Syllable*

Longest one-syllable word (number-of-letters-wise) in English is "strummed."

J.X.M.
Detroit, Mich.

Thank you.

• *Who's Laughing?*



If the SirVival (April MI) is put on the road it will not be a safety car. It would be a mass killer by causing people to die laughing.

John Bellamy
Muskegon, Mich.

If they can keep a straight face looking at the designs on the road today, Sir Vival wouldn't raise a smile.

• *Query*

I am 12 years old and my dad owns a '57 Plymouth and I want him to get a '59 Plymouth but he says he can't afford it. What can I do?

D.L.J.
Lancaster, Calif.

There are a number of possibilities, including threatening to hold your breath until you turn blue (not recommended as a long-term program). Best idea is to leave Uncle Tom's test of the '59 Plymouth around where Pop can see it. That might do it.

• *Attic In The Cellar*

I have been toying with the idea of a house which could sink into its own cellar in event of tornado warning. It might be raised and lowered by hydraulic lifts. In your opinion, is this idea an idea to end all ideas?

Mrs. L. M. Johnson
Mt. Jewett, Pa.

This is a well-known idea. Hitherto it has been suggested for skyscrapers, to eliminate elevators. Your application is perhaps sounder.

[*Continued on page* 19]

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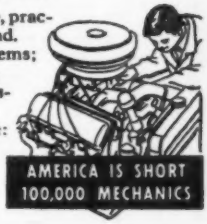

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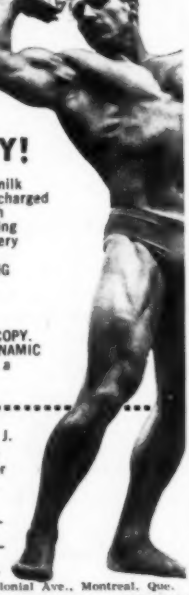

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Dear Editor

[*Continued from page* 16]

• *Correction*

In the March issue of MI (page 76) a caption states that Dr. Arthur Bryan is the inventor of the Airway he is supposedly demonstrating. Dr. Peter Safar and I did research work for the Surgeon-General of the U.S. Army concerning mouth-to-mouth resuscitation. As a result of this work we developed the "Airway" method, i.e., employing a tube through which the life-saver blows air into the lungs of the patient. We also developed a tube of special design for carrying out the Airway method and have filed applications for patents covering this development. These applications have been assigned to Johnson & Johnson, and they are presently marketing a tube of this design under the name "Resusitube."

Capt. Martin C. McMahon
Municipal Ambulance Service
Baltimore (Md.) Fire Dept.

• *Still More About Hiccups*

Several times I have had hiccups and every time I would start reading your article to find out how to cure them but every time I would get about half through and they would stop. Is there any way I could read it through?

D. B.
Columbus, Ind.

Speed up your reading.

• *Baby Ace Plans*

How can one get plans for the Baby Ace?

Walter L. Roberts
Landis, N. C.

One can have a stroke of luck and find copies of MI for May, June and July of 1955. Or The Experimental Aircraft Assn., 9711 W. Forest Park Drive, Hales Corners, Wis., will sell large-scale plans for $20.

• *Tasmanian Pen Pal*

I am 19 and my main hobbies are motor racing and color photography. I am writing to you in the hope of finding a pen friend interested in the same things and prepared to swap photos and programs of car races.

Graeme George
12 Cridge Street
Launceston, Tasmania

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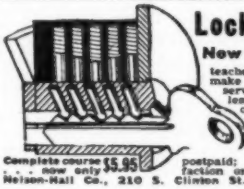

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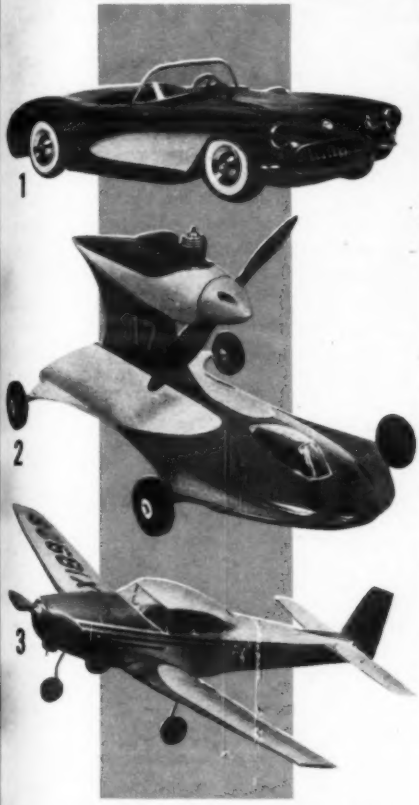

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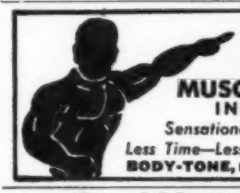

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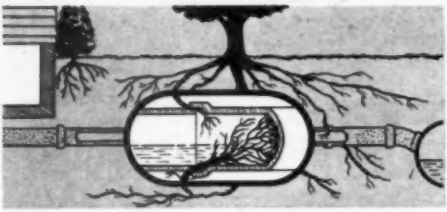

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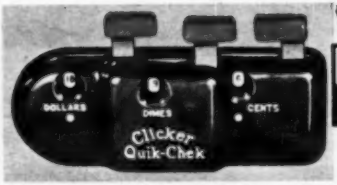

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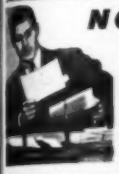

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FROM PARIS, FRANCE, COMES NEWS OF AN AMAZING fish-catching lure. The world's first truly 'live action' lure that's guaranteed to catch more fish . . . catch bigger fish . . . and catch fish when everything else fails . . or it costs you nothing.

A Beautifully made lure that saves you hours of work digging worms, catching minnows or other live bait! . . . saves you the endless expense of continually buying expensive plugs, spinners, flies and other fancy equipment designed to catch YOU instead of fish . . . lets you make your fishing trips more fun, more exciting and lets you enjoy every minute you're fishing from dawn till dusk . . . with more and bigger catches.

A French Invention

The secret is a scientific 'live-action' tail that had never been patented before. Developed by a French sportsman who named it VIVIF, this wonder-working 'live-action' lure is the result of years of testing all kinds of lures on all kinds of fish...**and watching the fish react to each lure under water.** From these studies came VIVIF, the lure that works when everything else fails. VIVIF is now being used by over 350,000 fishermen in 25 countries who rave over VIVIF.

From all over come reports of record making catches . . . of fish biting where all other lures failed . . . of the sureness, the simplicity . . . the effectiveness of this miracle lure. Think what this means to you. Now at last you can catch every kind of fresh water game fish as well as salt water fish . . . and never spend a penny for fancy plugs, spinners or flies again. You can do away with digging for worms, catching bugs, frogs or minnows. You can cast, troll, shore fish . . . all with equal success. You can go out after . . . and **come back with** . . . bass, pike, pickerel, perch, bream, trout, walleyes, salmon, red tuna, striped bass, bluefish, weakfish, and do it time after time without any previous experience.

PHOTO PROOF!
Fish just can't resist the amazing VIVIF with its patented "Live-Action" tail! VIVIF caught this 40 lb. salmon for Mr. E. F. Coleman and 1st prize in a fishing contest.

Marvel of Design

Not just another stiff plastic or wood lure that 'looks good' but doesn't work. VIVIF is made of life-like latex and is the world's most life-like lure in the water . . . works better than live bait! Color combinations have been scientifically selected by fish in actual tests. Acts and wiggles like a live minnow.

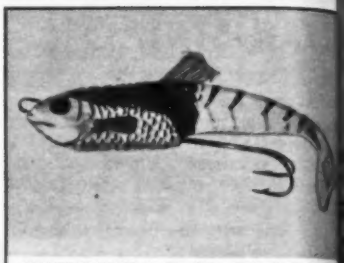
VIVIF IS IMPORTED SUPPLIES ARE STILL LIMITED

To get your VIVIF now, mail Free Trial Coupon at right. U.S. supplies are still very limited and are not yet sold in stores. Order now to be sure you'll have your VIVIF in time for your next fishing trip. Only if you act at once can we guarantee to fill your order immediately. Shipment of famous VIVIF is on its way from France. Don't delay. Mail Free Trial Coupon Today.

Each VIVIF is sent to you in a FREE clear-plastic container with Full Money Back Guarantee.

GET MORE FUN OUT OF FISHING

Here is a photo of a Frenchman who used VIVIF. The pike is 18½ pounds. In England VIVIF holds a world's record. In 25 foreign lands VIVIF is catching fish for delighted fishermen. Already reports from fishermen in this country are coming in . . . reports saying VIVIF is the greatest lure they ever used. 350,000 fishermen can't be wrong. Test the magic powers of VIVIF yourself **without risking a penny.** VIVIF takes the luck out of fishing, lets you have more fun out of fishing . . . because you catch more fish.



AMAZING VIVIF Is Flexible, Soft And Super Realistic. VIVIF is soft to the touch like a live minnow . . . wiggles like a live minnow . . . swims realistically in the water. VIVIF CONTINUES TO ACT LIKE A LIVE MINNOW EVEN ON A SLACKENED LINE.

Perfectly balanced, VIVIF casts beautifully with either bait casting or spinning equipment. Doesn't spin . . . can't twist your line. VIVIF WAS DESIGNED TO CATCH FISH . . . NOT FISHERMEN!

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MONEY BACK GUARANTEE!

No longer do you have to come home empty handed from your fishing trips. Avoid the costly mistake of using those "flashy" plastic and wood lures that 'look good' to you but fail to catch fish. Try amazing VIVIF . . . the French lure designed to **attract and catch fish** . . . without risking a penny.

All you do is mail the no-risk free trial coupon below. When you receive your VIVIF, use it **anywhere** you like . . . use it as **often as you wish** to prove its fantastic fish-catching powers.

See for yourself how it looks and acts in the water. See how easily it casts, how it moves through the water as realistically as a live minnow . . . even on a slackened line!

Put VIVIF to every test you don't agree it is the finest lure you've ever seen . . . if it doesn't catch more fish and bigger fish, if you have used it entirely free it won't cost you a penny.

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.....	2¼"	1/6 oz.	Black & Gold	V-2	@	$1.35	
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.....	3"	1/3 oz.	Brown Silver-Red	V-51	@	$1.65	ALL THREE FOR $4
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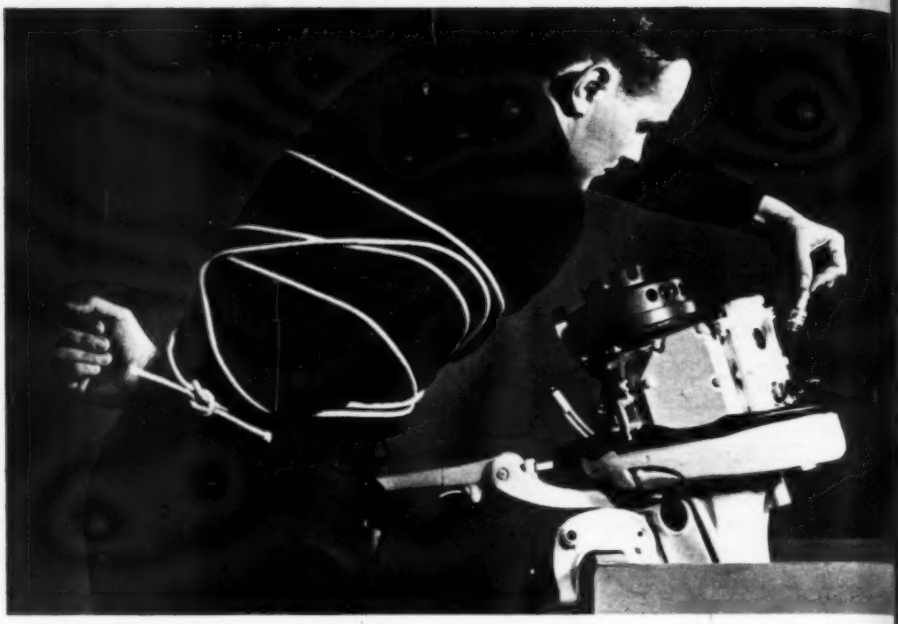

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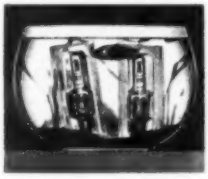
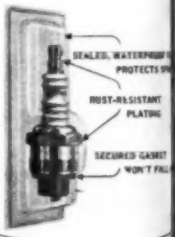


Champion
Spark Plug Co.
Toledo 1, Ohio



CHAMPION
SPARK PLUGS

YOU'RE A SAFER SKIPPER WITH A SPARE SET OF CHAMPION SPARK PLUGS

Mail for McCahill

Uncle Tom is sorry he can't answer all his mail personally. In this column he'll answer the most interesting letters. Write to him at MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y.

● *I've gotten all the plans and specifications together for the 1959 Cadillac and am thinking of building one myself. Do you think this would be a worthwhile project?*

Arthur K.
Charleston, S. C.

Sure.

● *I weigh a little over 300 pounds and drive about 40,000 miles a year, alone. After a few thousand miles the body of every car I've ever owned gets a set to the left, and some of my unfriendly friends kid me about this. Is there anything I can do to avoid this driver's side sag?*

Al T.
Chicago, Ill.

I assume you've heard of dieting and have found it unappealing. Aside from this, Air-Lifts on the driver's side, or even a shock adjustment, would help a lot. With these adjustments, however, your car may lean to the passenger side when you get out. Have you considered a fat friend to ride with you in the passenger seat?

● *What's the real lowdown on economy cars? Is it the mpg you get, the depreciation, or what should a guy look for in an economy rig that will prove really important?*

Frank Carrick
Indianapolis, Ind.

The real economy pitch is based on several factors. One is the total number of miles the car is to be driven each year. Second (and more important by far), is how much can you get for the car on a quick emergency sale, one, two or three years after purchase? Between two makes of automobiles, both selling originally for $3,500, resale value in 18 months may show a difference of as much as $500. It takes a helluva lot of gas savings to make up that much. Depreciation is the Number One economy factor every buyer should keep in mind.

● *I personally think your column is as informative as an encyclopedia. Your reader,*

Saul Sklar
Jericho, L. I., N. Y.

Thanks, pal. So *you're* the one!

● *Saw a picture of a General Motors car that costs $8,000. The caption said they make only a few of these cars and that they sold one of them to Frank Sinatra. What's the jazz on this car?*

Chuck Moneagle
Union, N. Y.

Last we heard, The Tonsil was driving a Dual-Ghia convertible.

● *I have a problem. I've got a Model A Ford (1928) and my dad wants me to restore it to its natural condition, if possible. However, I want to make a roadster out of it. Shall I make my dad happy or should I make myself and my teenage friends happy?*

Bill Mattos
San Jose, Calif.

Trade it in on a new one and make everybody happy.

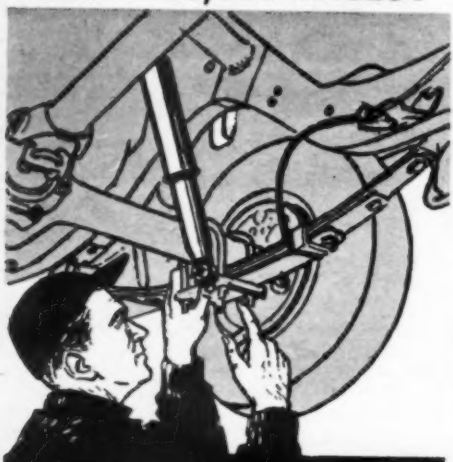
● *I was delighted to read your able reply to Senator Neuberger in the February MI. I thoroughly agree with the conclusions reached and the reasoning behind them. I am firmly of the opinion, however, that all the safe cars produced cannot neutralize the devastating results of the mildly and very drunk drivers that roam our highways. Education and laws will have to be improved on that score.*

Robert E. Bolton, M.D.
Wenatchee, Wash.

Thanks, Doc. The drunken driver situation, I'm afraid, will never be solved by education. There may be an answer but if there is I sure don't know it. I personally can think

[*Continued on next page*]

For smoother riding and safer driving . . .
REPLACE WORN SHOCKS EVERY 20,000 MILES!



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Cleveland 15, Ohio

of a half dozen friends who are solid citizens in every way until they get to the local country club on Saturday night for their weekly parboiling. When they reach the dangerous stage, even the guy who's the sanest man in the community when sober is "Jesh shure 'zi can be I c'n drive OK." If you try to intercede you've got a fight on your hands, so nine times out of ten you cross your fingers and hope he makes it. He usually does—but some don't.

When a man reaches a certain state of booziness, laws don't have the slightest meaning to him. In my opinion, the safest drinking driver is the real alcoholic who stays at a fairly constant level around the clock. I know one or two of these who, under the circumstances outlined above, haul to the side of the road and sleep it off, or sleep it off in the club parking lot. The real alcoholic is a better judge of his driving ability at any time than the once-a-week tiger who thinks if one for the road is good, three would be better.

● *You're really cut out for drama, you know. I can tell by that photo of you talking to Mauri Rose in the February issue. You look like an inflated Marlon Brando topped with a touch of Yul Brynner. I have two questions, Killer—are you cross-eyed?*

J. J. Johnson
Houston, Texas

I just asked Mom and she says that is three questions, so you're disqualified.

● *My wife and I are planning a vacation trip through Texas to the Grand Canyon this September. Our car is a 1957 Ford convertible. We would like to have your opinion as to what mechanical adjustments should be made before attempting a trip through high altitude areas and desert heat. We are concerned primarily with the problem of engine overheating.*

Henry C. Potts III
Caldwell, N. J.

If your car is in tip-top shape there is no reason why it should need any extra "adjustments." However, in fighting real desert heat it's wise to make sure the pressure radiator cap is up to snuff, the fan belt in good shape and the radiator core clean. Also, make sure you have an adequate supply of water aboard, not only for drinking but to replace any lost through a possible engine boil-off. I came close to getting it one time in Death Valley in June with no extra water.

● *I am not at all familiar with television procedure but I for one would love to get away from some of the Westerns and feel*

[Continued on page 46]

Ever wanted to design your own car? Chevrolet lets you come awfully close—with a choice of nine engines, five transmissions, two suspension systems, regular or Positraction rear axles, special cams, solid or hydraulic valve lifters, two air-conditioning systems, even Fuel Injection. You name it, chances are Chevy has it. Here's an example of what we mean.

"I 'built' my Chevy as a magic carpet . . . with a pure-silk cruise."

"When I sold my business and retired I knew exactly what I wanted to do: slide behind the wheel of a big long-legged car and spend a solid year seeing the U.S.A.

"And I knew exactly the car I wanted, too, after an evening studying Chevy's all-out list of options. Here's my own recipe for the ideal cross-country automobile:

"An Impala convertible; the Turboglide transmission* (so *completely* automatic it takes the strain out of strange big-city traffic); and that whopping 348-cubic-inch Turbo-Thrust V8* (for the quietest pure-silk cruising I've ever felt in *any* car).

"Just to make it a real magic carpet I added power steering*, power brakes* and that six-way power seat*. Say, I'd pay double for that; on a long stretch you change positions a couple of times and you just don't get leg cramps or tired shoulder muscles! One thing I can tell you after putting 20,000 miles on my Impala, I'm tickled pink with the car Chevy let me design for myself—there's just nothing like it!"

Well, that's the reason behind Chevrolet's terrific range of options—nothing's quite so satisfying as a car "tailor-made" to your needs. And we're darn sure that, whatever you want, there's a Chevy to fit your dreams. Try us and see. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

**Optional at extra cost.*

[Continued from page 44]

a program called "McCahill Tests" would go over big. I am a female but enjoy your magazine more than any published. I can truthfully say the only magazine I even venture to read cover-to-cover is MI. My husband and myself would be ardent watchers of a TV program with Tom McCahill in it.

Mrs. Wm. W. Campbell
Fairfield, Calif.

Have been approached on this many times by many different agents, to no avail. I'm afraid TV is the one place where the horse outranks the car. But thanks for the plug.

● *We have a '58 Buick station wagon that we use for camping. We'd like to have some simply-installed draw curtains so we can sleep in the car. Is there any company that makes rods similar to those for draw drapes that could be fastened on the car? We would like the curtains to cover both the windshield and rear windows, as well as the side windows.*

Don Jorgenson
Cedar Falls, Iowa

Any interior decorating outfit or good boatyard could rig you up in a hurry—but it m[illegible] be real tough on your driving.

● *Which would you rather have as an o[illegible] car if there were just you and your w[illegible] —a new Rambler American, Studie Lark [illegible] MG Magnette?*

Wally Harris
Orangeville, C[illegible]

If there were just me and my wife, I'd [illegible] by boat.

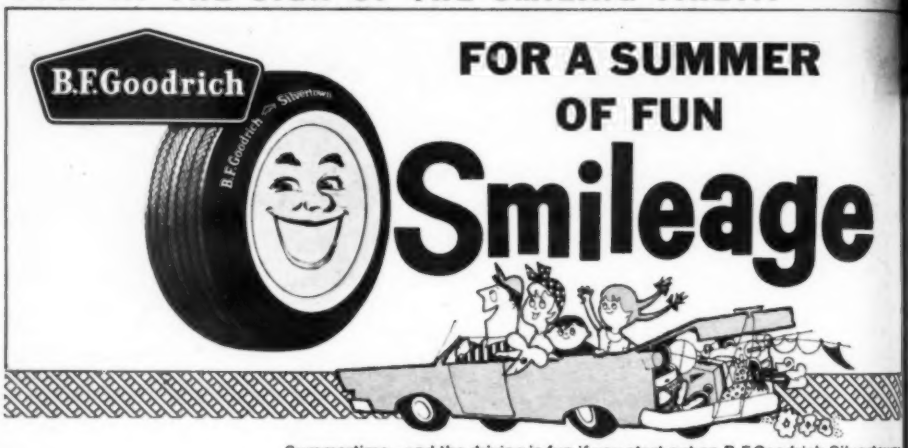
● *To settle an argument—what is "timin[illegible] in an engine? Some say it's when th[illegible] spark goes off. I've also heard it claim[illegible] that it refers to the position of the valv[illegible] Straighten us out, please.*

PFC Ted R. Free[illegible]
APO, N. Y.

You heard right on both counts becau[illegible] there are two kinds of timing in an engine—spark timing and valve timing. Correct spa[illegible] timing (controlled by the position of the dis[illegible]tributor) means a spark will occur at just the right instant—usually a few degrees in advance of top dead center—and will take plac[illegible]

[Continued on next page]

STOP AT THE SIGN OF THE SMILING TIRE...



Summertime—and the driving is fun if you start out on B.F.Goodrich Silvertowns

Drive worry-free on new B.F.Goodrich Silvertowns! Inventors of the tubeless tire built them, gave them tougher tests than any fast-moving vacationer could. Get Smileage now. Forget tire worries with the quality tires automakers choose for new cars year after year. 4 tires, only $4 down.

Look for your B.F.Goodrich Smileage dealer in the Yellow Pages. The B.F.Goodrich Co., Akron, Ohio.

B.F.Goodrich ***Smileage dealers***

How to tune up your car without tools

1 Use some clean rags and a bottle of non-flammable household cleaning fluid to remove every speck of dirt and grease from exposed ignition wiring, spark coil, condenser, distributor, battery top and spark plugs. This will cut down electrical "leakage" and give you a more potent spark for increased pep and gas mileage.

2 Clean out carbon and combustion deposits from engine's upper cylinder area with a series of full-throttle accelerations. Do it this way: Find a stretch of lightly traveled road and brake to a stop with your engine idling. Now put 'er in gear and accelerate to the legal speed limit as fast as you can — with the gas pedal pushed down to the floorboard. Gently brake to a stop and repeat six times.

3 Take a 100-mile round-trip drive on open roads where you can drive at legal speed without constant stop-and-go. This will "boil away" liquid contaminants that get into your motor oil between 1,000-mile changes — and improve your engine's lively "feel."

4 Make it a habit to use the *only* gasolines specially blended for *your* climate and altitude *wherever* you drive . . . Texaco Sky Chief Su-preme with Petrox, or regular-price Fire Chief. You get superior performance with these gasolines because their formulas are changed every month of the year in every one of 26 climate areas in the United States. Yet, they cost no more than other "premium-grade" and "regular" gasolines!

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REG. T.M.

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WORKING FOR PROGRESS

Buy the best . . . buy TEXACO

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● **The Bowes "Seal Fast" Corporation has carefully developed this test to help them select qualified men for their distributorships!**

	Yes	No
1. Are you between 35 and 45 years old?	☐	☐
2. Have you an education beyond 8th grade graduation?	☐	☐
3. Are you married?	☐	☐
4. Do you have 3 children or less?	☐	☐
5. Do you own (or are you buying) a home?	☐	☐
6. Have you lived at present address 2 years or longer?	☐	☐
7. Were you at your previous address 2 years or longer?	☐	☐
8. Have you a telephone at home or at your place of business?	☐	☐
9. Is your car at least 3 years old?	☐	☐
10. Do you belong to a church, lodge, club, YMCA, veterans' or civic organization?	☐	☐
11. Have you been on your present job at least 2 years?	☐	☐
12. Were you raised in a town with less than 50,000 population?	☐	☐

Now—count the "yes" answers. If you have 8 or more, you may be on your way to being your own boss.

Everybody respects a man who is his own boss. And they notice his family lives a little better than most. Perhaps you've thought about running your own business too but put off doing anything about it because you didn't have any idea about how or where to start. You probably asked yourself: If I do start my own business, what would I be best at? A hardware store? A restaurant? A filling station? Certainly you wondered if you could raise the money, and how much it would take—$10,000? $20,000? $50,000?

For people like you who have seriously thought about running their own business, the Bowes "Seal Fast" Corporation has prepared a booklet with most of the answers to these questions. We call it, "So You Want To Be Your Own Boss!" In it a number of different small businesses you might be interested in are described and compared as to work, investment and possible profits.

This booklet also tells why Bowes is now offering a few men a chance to become automotive distributors selling to service stations in protected territories.

If you're not afraid of hard work and can make an investment of about $8,500 in a truck and stock, you may get a chance to become one of these distributors. If Bowes picks you, you will be thoroughly trained until you are well on your way to a solid, gamble-proof income.

Clip the coupon below and send it in now for your free copy of our booklet, "So You Want To Be Your Own Boss!"

Bowes Distributors throughout the country are part of a multi-million dollar operation. They represent a firm which in 40 years has grown to be one of the largest of its kind, with plants in London, England; Hamilton, Ontario; Riverside, California, and Indianapolis. Its credit rating is the highest (AAA-1) available.

CLIP THIS

Mr. Charles E. Bowes, President
The Bowes "Seal Fast" Corporation
3902 E. 34th Street, Dept. 407; Indianapolis 18, Indiana

Please send a copy of "So You Want To Be Your Own Boss!" Also tell me without obligation how I can go into business for myself as a Bowes Distributor.

Name.....Age.....

Address.....

City and State.....

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in the proper cylinder. Valve timing is correct when the intake and exhaust valves crack open or closed at the most advantageous instant. Valve timing is controlled by the camshaft which is guided and held in the correct position by either a timing chain or gear, depending on the make of engine.

● *A campaign on your part to have the ends of windshield glass protruding into the roofs of new cars reduced would be appreciated. During the summer time a chap becomes uncomfortably hot when he is back of one of these new types of windshields.*

Donald H. Hopkins
Spokane, Wash.

We've been campaigning against ridiculously large windshields since their inception. If you want to watch the sparrows migrate, stop the car and get out.

—*Tom McCahill*

DON'T DO-ITS

How to make your diploma pay off in Military Service

Published especially for high school graduates and seniors

Just off the presses! A valuable 48-page booklet titled *The Secret of Getting Ahead*. This free booklet explains all about the special Army opportunities open to high school graduates—shows you how to make your diploma pay off in military service!

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Do you know the answers to these important questions?

What are the qualifications for the Graduate Specialist Program? How can a high school senior gain by applying *before* and enlisting *after* graduation? Does Army schooling have civilian value? What are Army schools like? What is the "secret" that increases your chances for success when you make *any* decision? *The Secret of Getting Ahead* answers all these questions—and many others. What's more, the booklet contains vital information about Selective Service and Army Reserve—important facts every draft-eligible young man *should know*.

Here's the fastest way to get your free copy

To get your free copy of *The Secret of Getting Ahead* in the quickest possible way—stop by your local Army recruiting station. There's *no* obligation. No recruiting station in your area? Then use the coupon to order your free copy direct from Washington. It'll be mailed to you immediately—without obligation.

MI-7-59

THE ADJUTANT GENERAL
Dept. of the Army
Washington 25, D. C.
ATTN: AGSN

Please rush me a free copy of *The Secret of Getting Ahead*. (I'm a high school graduate or senior.)

Name_____

Address_____

City_____ Zone____ State_____

It's Coming!

New miracles of science that you'll be seeing soon.

MISERABLE red-nosed sneezers and sniffers afflicted with a common cold may soon be able to obtain relief via a vaccine now being developed, according to Dr. Thomas G. Ward, virologist at the University of Notre Dame. The vaccine, says Dr. Thomas, "will prevent in the area of 60 to 70 per cent of the common colds."

Green tinted highways with yellow dividing lines which would be more restful and prevent glare might be one way to reduce the number of traffic accidents on highways, according to Dr. Alden N. Haffner, executive director of the Optometric Center in New York City. The black and white now used on highways causes glare which markedly hampers a driver's vision, says Dr. Haffner.

The oven of the future may be a portable aluminum sphere designed for use wherever needed—at your dinner table or on your patio. The oven's heat source could be the conventional electric unit or less conventional sources such as infrared or quartz light, solar, ultrasonic or induced heat. The oven was designed by Greta Magnusson Grossman for the Aluminum Co. of America.

Throwaway bathing suits developed by the chemical industry for one-time use may be worn by in-the-swim enthusiasts of the future, according to Dr. L. Shailer, Jr., of the B. F. Goodrich Chemical Co.

No-hangover synthetic whiskey may be on the way for imbibers who like to take their nips in large and frequent intervals. The synthetic liquor would have the same taste, aroma and punch as the real stuff but lack the two chemicals that cause headaches, according to Dr. Robert Carroll, chemical consultant of Greenwich, Conn.

The Atomic Energy Commission is working on the development of a low-cost radiation detection instrument that will fit into transistor radios. The personal safety device could be used in the event of nuclear war or in private industry.

Library machines that will not only find references, but read the books for you and teach you from their contents, were predicted by Calvin N. Mooers of the Zator Co. of Cambridge, Mass., who foresees such library machines in use within 20 years.

A nuclear-fueled electric power plant has been designed to take man into space in huge interplanetary space vehicles. The power source would weigh about 60 tons and could supply 20,000 kilowatts of electricity. Scientists at the National Aeronautics and Space Administration's Lewis Research Center designed the powerplant, which would have a full-life powerlife of about two years.

Completely bone-free fish fillets may soon be available to the housewife. An automatic detector-rejector device, which will spot bone-bearing fillets and eject them from the packing conveyor lane, is being perfected by Barkley and Dexter Laboratories of Fitchburg, Mass.

The world's first atomic cargo submarine, a 50,000-ton, 600-ft. boat, will be built by the Mitchell Engineering Organization of England. The boat, nicknamed Moby Dick, will be able to travel under the ice into Canada's Hudson Bay all year. It will cost about $54,000,000.

Advanced warning of heart troubles may be foretold one day by FM broadcasts of heart sounds inaudible to the human ear. A special microphone is placed over the heart and picks up the various vibrations made by that organ. Researchers at the University of California Medical School and Los Angeles Veterans Administration are developing the electronic device.

A cheap, solid-fuel plastic rocket that could be fired daily by Weather Bureau personnel in large cities in order to provide more accurate weather forecasts, was recently foreseen by the successful firings of the ARCAS (All-purpose Rocket for Collecting Atmospheric Soundings). Two men would launch the missile which would explode harmlessly once the desired information had been received. •

—J. Robert Connor

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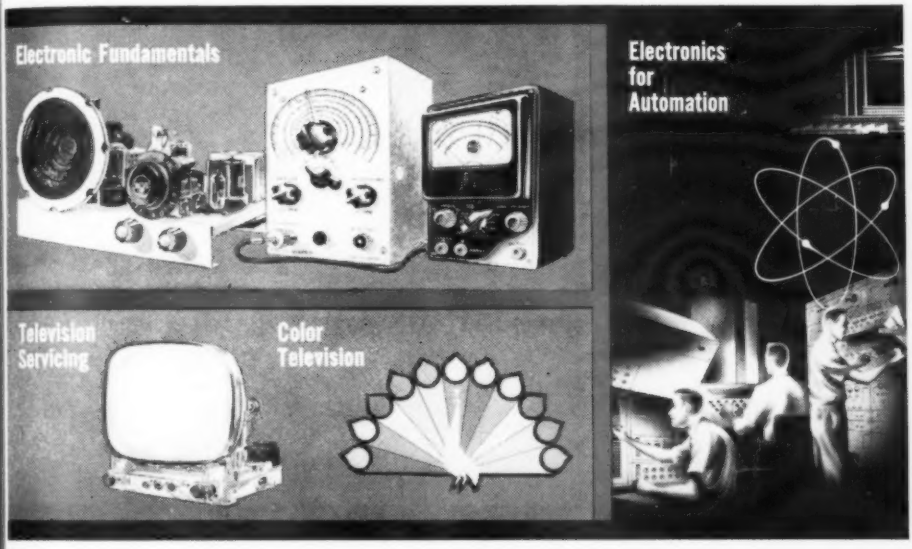

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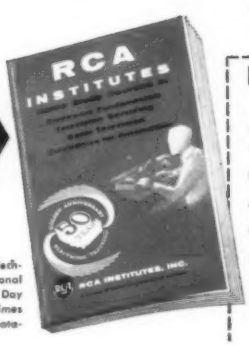

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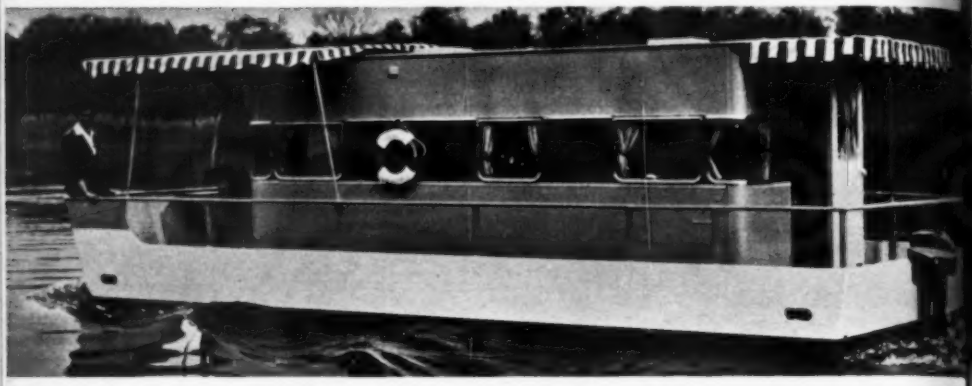
Mechanix Illustrated

1959

The Fun of Houseboating

A typical houseboat sleeps four to six people and there are dozens of models to choose from.

By George Laycock

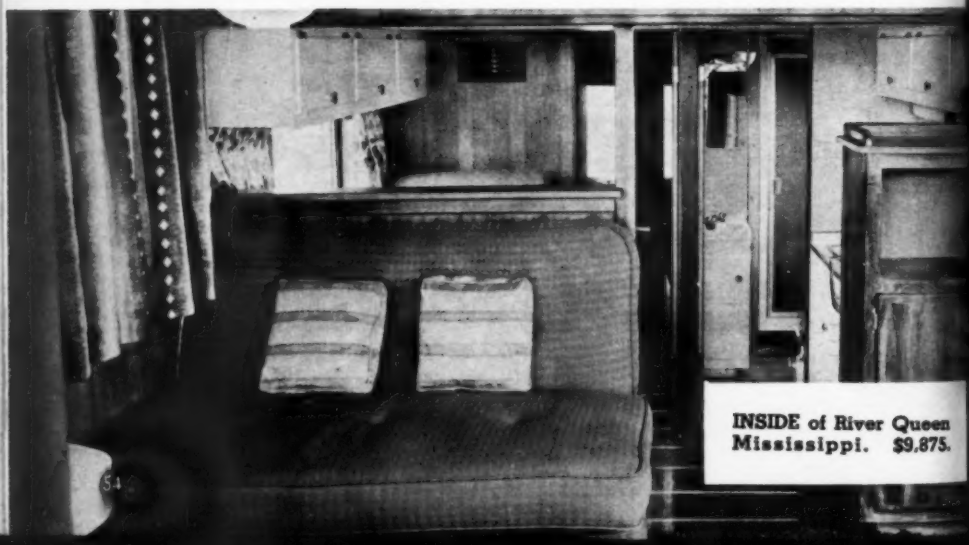


FLAT-AFLOAT is an English-built catamaran-type houseboat selling in New York for $3,675.

HOUSEBOATS are floating down rivers and peacefully gliding on lakes throughout the land. The fun of being on the water in a boat that offers comfortable living quarters and plenty of elbow room is making a strong impression on a growing number of vacationers.

Ten years ago you would have had trouble finding a single houseboat manufacturer. Today there are dozens of them. One reason for the growing popularity of these cruising cottages is that the houseboater lives so comfortably. A

HOLIDAY HOUSEBOAT, on preceding page, is made by Richland Mfg. Co. Price: $6,800.



INSIDE of River Queen Mississippi. $9,875.

MARIENETTE by Falls City Flying Service is 28 ft. long, aluminum, sleeps four. $5,695.

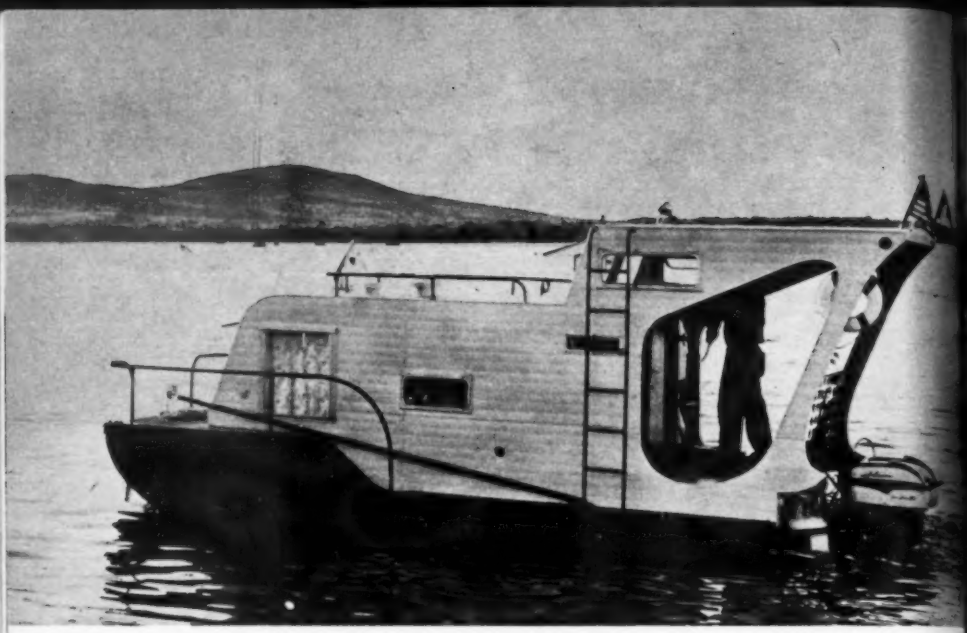
typical houseboat sleeps four to six people. It has a kitchenette complete with sink, refrigerator, running water, alcohol stove and storage space for dishes, silverware, cooking utensils and pans.

There are marine-type toilets and adequate closets. The dinette area, often built around a picture window, converts into sleeping space. These are usually basic features. Depending on your tastes and pocketbook you can add almost anything to this list ranging from TV sets and built-in bars to guest staterooms.

One 35-ft. luxury style houseboat, offered by an Indiana builder at $6,500, sleeps six and comes with a fiber glass-insulated cabin, mahogany paneling,

MARINE TRAVELER by Modernette Mobile Marine is 20-footer, has steel hull. $2,295.

MISSISSIPPI BELL has well-planned, roomy interior. By Dubuque Boat and Boiler Co.



MOBILE DUCK is a combination houseboat and trailer that sleeps four. From Har-Mac Inc.

four cubic-foot gas refrigerator, apartment-size deluxe range, gas water heater, marine toilet, shower, lavatory, furnace and both gas and electric lights. The control panel and wheel are in the front of the cabin so the skipper can spend his time with guest or family while piloting his boat. The same builder sells a 20-ft. model for $2,295.

It's obvious that the modern houseboat offers more comforts than cruisers of the same size. They're probably the biggest dollar value of any class of boats available today. The barge-type construction of the hulls keeps costs down. Houseboats now on the market range in price from less than $2,000 to more than $35,000, with the average selling in the vicinity of $3,000, without power.

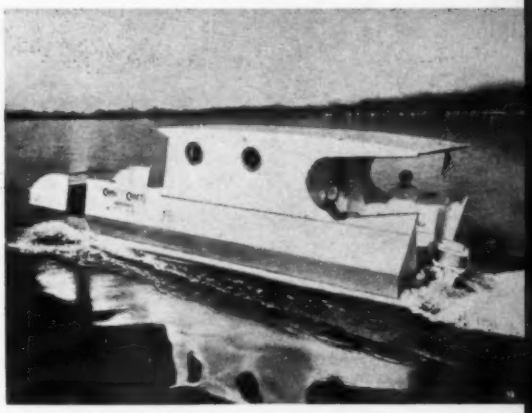
This is relaxed boating. You take your pleasure in the going instead of the getting there. Houseboats are slow com-

MOORE CORP. 30-footer features sun deck.

SUNLINER, Dreamboat Mfg. Co., is $3,795.

Houseboating is ideal for family outings for an afternoon or one of those long summer weekends.

RIVER QUEEN Swanee, 24 ft., and Ohio, 32.



CARRI-CRAFT, fully equipped, is $2,780.

pared with runabouts or cruisers. Some claim speeds up to 18 mph but the average is much closer to eight.

One Midwest family took a ten-day river houseboat trip and covered 450 miles, only 45 miles a day. "We watched the hills go by," they said, "and had fun going through locks and seeing the big river boats. When we wanted we would stop to fish, swim or visit a town. At night we tied up to a tree on the bank. There was always something to do or see."

Houseboating is ideal for family outings for a day, a week or one of those long weekend vacations which are becoming increasingly popular. Houseboats also make excellent craft for fishing parties or as base headquarters for duck hunters. The shallow draft boat enables you to get into coves and other good fishing spots.

The average houseboat measures about 25 ft. long by eight ft. wide but you can get one from 15 to 50 ft. in length. The hull may be wood, steel or aluminum. Steel hulls are the most rugged and can be beached practically any place without fear of damaging the boat.

Practically all makes of houseboats offer deck space for lounging. Many of them have front decks where you can drowse in deck chairs or survey the landscape. Decks on top of the cabins are also popular for sunbathing.

Houseboats are powered by either outboard or inboard engines; some are equipped for both kinds of power. The outboard is usually a 30 or 35-hp job equipped for remote starting and steering.

Trailer manufacturers have taken a close look at the houseboat business because houseboats and trailers are much alike on the inside. Some of them make combination land cruising-houseboats with retractable wheels. One of these, built on pontoons, sells at $2,780. It is 30 ft. and cruises at 13 mph with a 58-hp outboard. An eight-ft. beam is the legal highway limit in nearly all states. [*Continued on page* 168]

HOUSEBOAT MANUFACTURERS

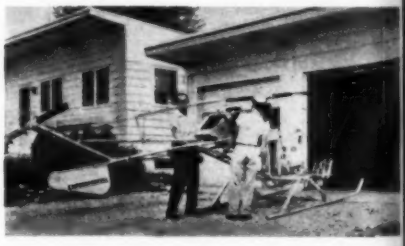
You can obtain a list of houseboat manufacturers and their addresses by sending a self-addressed, stamped envelope to the Information Dept., Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y.

$700 RIG has no costly aircraft parts, only commercially available components. It could be sold for only $1,500.

COPTER COSTS LESS THAN A CAR

EVERETT J. MORRISSETTE of Somers, Conn., pilot, engineer and former airport owner, has built a helicopter powered by a 40-hp Mercury outboard that could be mass-produced for $1,000, sold for $1,500. Or, Morrissette suggests, you could buy plans and build your own—as soon as the chopper gets its FAA certificate. Craft has auto-rotation—which means it comes down slowly if the motor conks out. The 250-lb. craft has a two-hour range.

GRAVITY-FEED tank is on shaft under rotor. At left: radiator to water-cool motor.



EASY FIT: rotor lashed. Mosquito slides easily in between family car, workbench

Now See This!

CALLING all hams! A wedge of light on the translucent Great Circle map indicator tells you when your Hy-Gain Roto-Brake, a new antenna rotating assembly, has turned your antenna in the proper direction. The 16-in. diameter Tenite plastic indicator can be wall-hung or mounted on the control table. The antenna withstands up to 100-mph winds. •

Hy-Gain Antenna Prod. Corp., 1135 N. 22nd St., Lincoln, Neb.

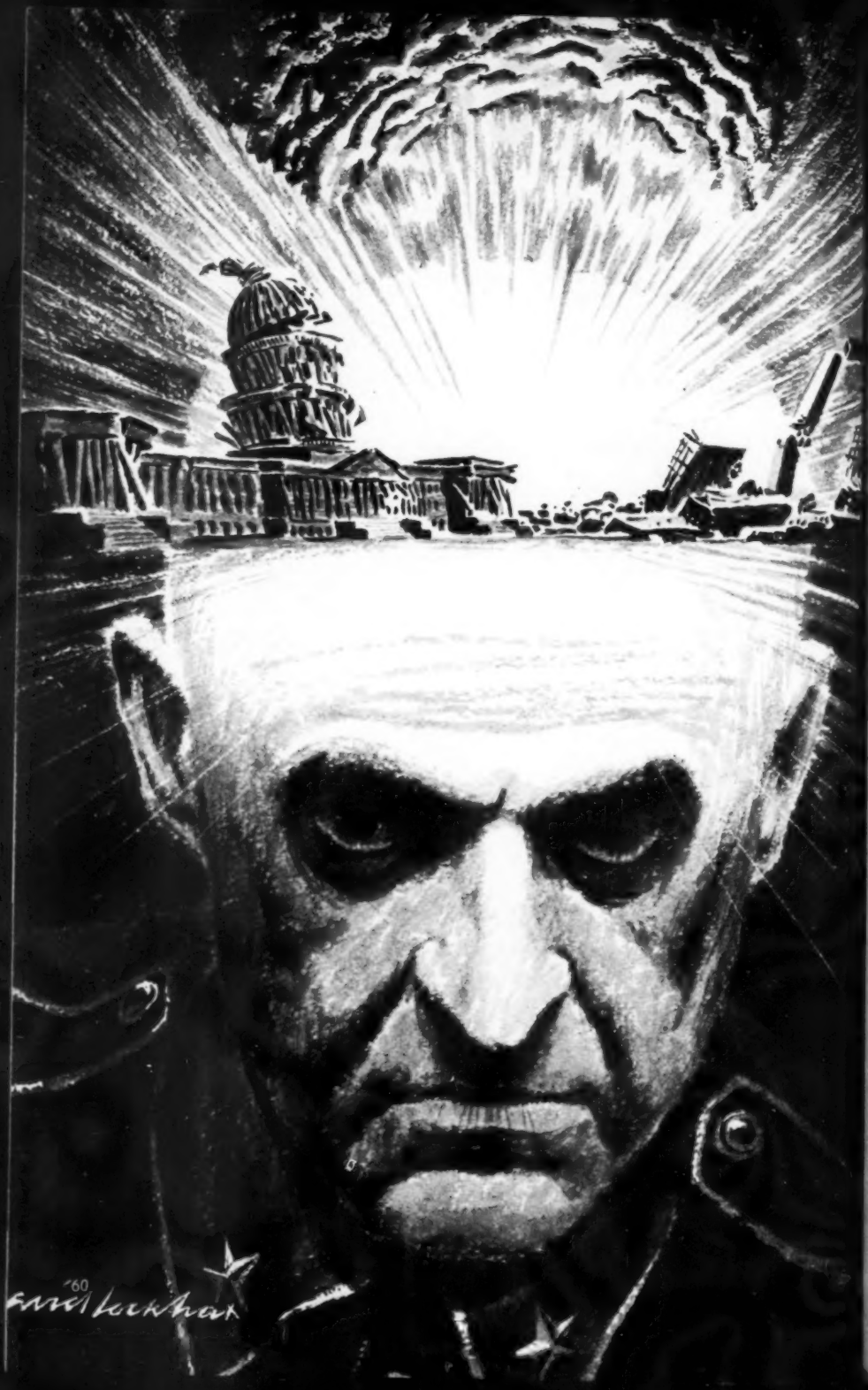
YOU can look and listen with this tiny transistorized combination radio and rear view mirror designed to appease the vanity of women motorists. The unusual portable is called the Vanguard and was developed by the Voxson-Faret Co. of Rome, Italy. The lady-pleasing accessory can also be taken from its mirror niche and carried for a midnight stroll or used on the beach both as a radio and vanity. What will they think of next! •

BUMBLEBEE enthusiasts can now assemble their own scale insect, eight times its normal size. The newest hobby kit in Ideal Toys' earth-science series is made of styrene plastic and comes in 44 pieces. Easy to assemble, it has transparent wings and a simulated plush body covering the dorsal surface. The model is 9½ inches long. Price: $1.30. •

Ideal Toy Corp., 200 5th Ave., N. Y. 10, N. Y.

MONOXOR is a pocket-size device for the detection and direct percentage measurement of carbon monoxide. The mechanically-operated device indicates the CO percentage by measurement of the length of a stain developed in an indicating tube. The CO test is made by depressing, then releasing the pushbutton of the sampling pump, thus drawing a controlled sample through a replaceable indicating tube. It can be used in home, shop, etc. •

Bacharach Industrial Instrument Co., 200 N. Braddock Ave., Pittsburgh 8, Pa.



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Can Mind-Reading End Wars ?

By Lester David

Here is an exciting plan to use ESP (extra-sensory perception) to insure peace for the entire world!

THE decision was made.

The silent, cold-eyed men, meeting in fateful session, chose the day and hour when a nuclear missile would be hurled at the capital of the United States.

These final plans were drawn up deep within the enemy's walled-in nerve center, thousands of miles from the U.S., under the most rigid security precautions. The soundproofed chamber bristled with traps and alarms, was guarded by three platoons of picked men.

Nevertheless, five minutes after the zero hour was set, the President of the United States was being briefed on all details! He was hearing them from men who saw and heard exactly what went on in the secret chamber through the powers of ESP—extra-sensory perception.

Swiftly, America went into action. A warning was cabled to the head of the enemy state that the plans were known to us—and that if the stab-in-the-back was carried out, nuclear weapons would destroy five of his major cities in retaliation.

The attack was never made.

You can be forgiven for looking upon the foregoing as a television producer's dream—but the truth is even more startling:

Dr. J. B. Rhine, head of the famous Parapsychology Laboratory at Duke University, is convinced the time has finally come for an all-out effort to discover how to control and use ESP as a defense weapon!

Therefore, Dr. Rhine, who is recognized as one of the world's authorities in the field of psychic phenomena, makes this astounding proposal to those concerned with the peace of the world:

Allocate funds so that an immediate and intensive research program can be undertaken to seek a way to bring this force under the conscious control of man. If this can be done, says Dr. Rhine, secrecy would be destroyed and the surprise attack could be defeated before it began.

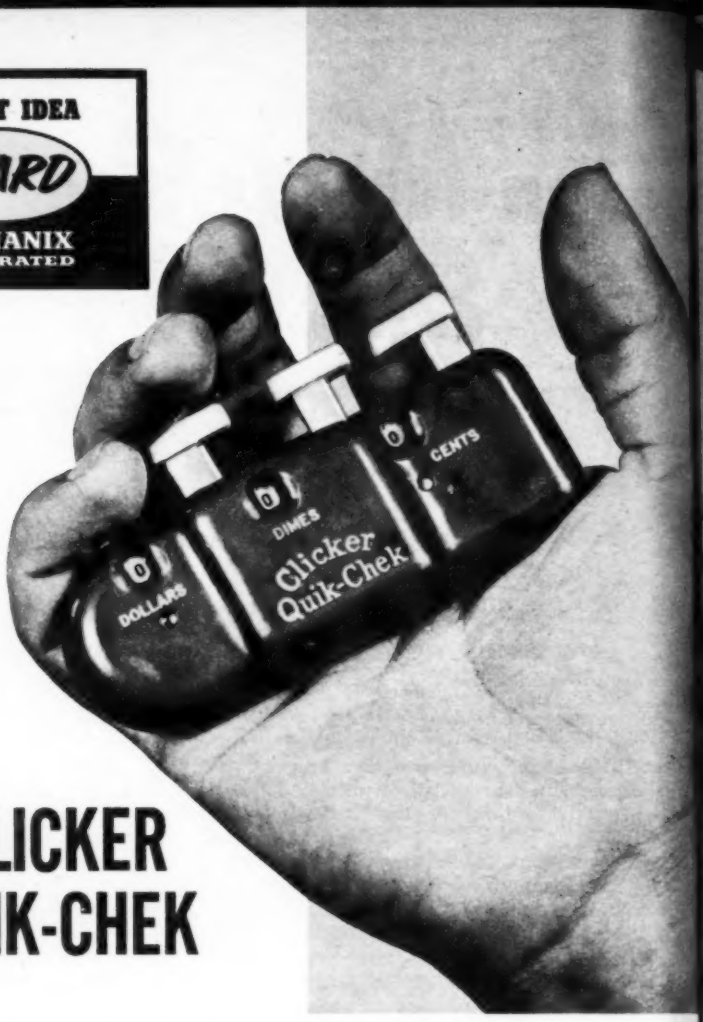
ESP is the mysterious ability of the human mind to see and know things directly without the use of any of the sense organs. A person gifted with the power can receive thoughts, feelings or impressions without employing the accepted channels of communications such as sight, sound or touch.

Hundreds of laboratory tests have shown that [*Continued on page* 163]

BRIGHT IDEA

AWARD

MECHANIX ILLUSTRATED



CLICKER QUIK-CHEK

ARE you a frightened victim of check-out embarrassment—you rack up $20 worth of groceries at the supermarket and then discover you have only $18.13 in your pocket? If you are, then the plastic Clicker Quik-Chek is for you. It's a pocket-size adding machine with three buttons that total up to $20. It's perfect to keep a running tally of how much you have to shell out. Quik-Chek will be a blessing for misers who hate to part with a buck or for the truly budget-minded. It is also handy for scoring contests, counting calories or teaching the kids how to count. The price is $2. The Lighthouse, Inc., Plymouth, Mass. •

POCKET-SIZE adding machine adds up to $20. It assists budget-minded and reminds Mom that Pop won't be paid for a week

WIN $50

MI will award $50 each month to the first person who tells us of a new and useful gadget that is patented and in production. Manufacturers are also eligible for this award. Pictures and a description should be sent to Bright Ideas Editor, Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y.

65 Days in the Air

GAS was pumped from speeding supply truck into the plane's 80-gallon belly tank.

SIXTY-FIVE days is a long time to be up in the air but fliers Robert Timm and John Cook of Las Vegas, Nev., hung on and shattered the old endurance mark of 50 days and 16 minutes.

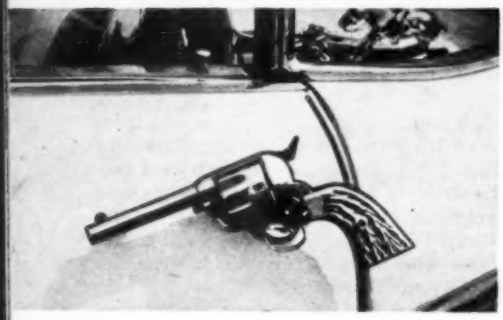
The tiny single-engine Cessna 172 was equipped with a pilot's seat and a seven-ft. bunk. Food, water, mail and clean clothes were supplied twice a day at refueling time—the most dangerous part of this flight to raise money for the Damon Runyon Cancer Fund. The plane sped only a few feet above the supply truck at 60 mph. •

PLANE'S grappling hook will be grabbed by man on truck. He'll attach supplies to it.

JAUNTY co-pilot Cook waves to truck crew during a refueling session above highway.

STEER HORNS decorate the hood; a chrome horse stands aloof on each front fender.

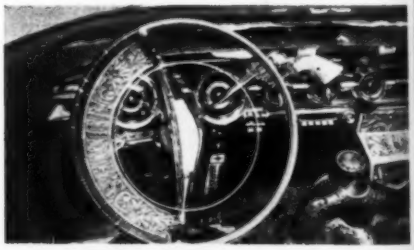
COW PONY DE LUXE



SIX-SHOOTER serves as door handle. When trigger is squeezed—bang!—the door opens.

NUDIE'S cow pony is a four-wheel iron hoss in on-the-range dress. The San Fernando, Calif., tailor who caters to TV and movie stars lined his '58 Pontiac with unborn calfskin. Its bucket seats are covered with white leather decorated with bulls, calves, etc. Goat horns serve as arm rests. Ten chrome horses' heads embellish the dashboard and doors. Carpeting is Australian goat fur. A miniature hand-tooled leather saddle divides the car's bucket seats. The flamboyant cowpoke rig cost Nudie $11,000—a grand more than the gold lamé outfit he designed for singer Elvis Presley. •

LEATHER seats are covered with appliqued western motifs made of unborn calfskin.



GEAR SHIFT is pearl-handled six-shooter. Hand-tooled saddlebag hangs from dash.

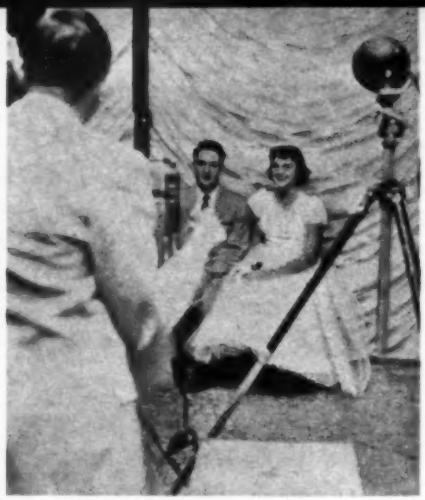
ENTERPRISING GI earns up to $50 extra a month snapping photos of his buddies opening packages from home. The gift-senders get photo with thank-you note.

You CAN MAKE MONEY-IN-A-MINUTE

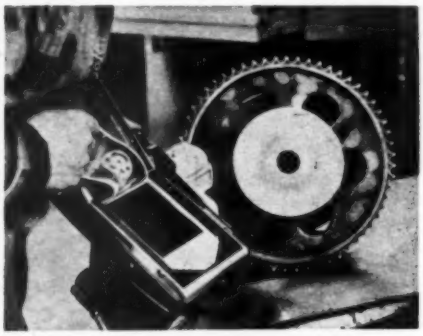
By Lyman Gaylord

ADVENTUROUS Murray Melbin had only one problem. The New York college student recently wanted to tour Africa and he was flat broke. But he didn't let lack of money stop him. He made his trip anyway and a year later ended up in Alexandria, Egypt, having traveled 16,000 miles through 24 countries at a total cost of only $27.61!

What Murray did was to swap photos taken with his picture-in-a-minute camera for everything from airplane rides and other transportation to meals, lodgings and souvenirs. And during that year Melbin's camera earned him more than $5,000 with its 60-second



SHOOTING couples at local dances, meetings is quick, easy way to make profits.



FOUNDRY worker adds to income taking one-minute photos of casting defects at plant.

MONEY-MAKING dad's part-time photos tell cabinet-maker's clients of work progress.

pictures of the African continent.

But you don't have to make a 16,000-mile jaunt through Africa to earn extra cash with a minute-camera. You can do it without leaving your home town. It's easy, too.

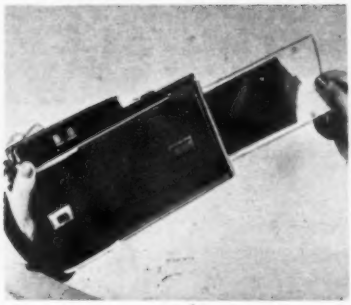
For instance, the groundskeeper of an athletic field in Canada makes an extra $10 every Saturday during the football season by shooting photos of the out-of-town football team's defensive formations. He delivers prints to the home team coach during half-time. The coach likes them because he can pick weak spots in the other team's line-ups.

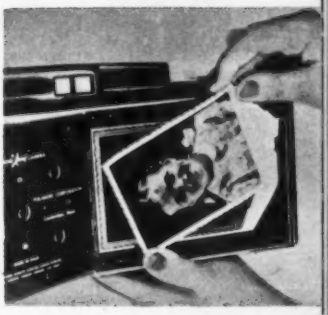
Another average but enterprising amateur GI photographer uses his Polaroid Land Camera to snap pictures of his buddies opening packages from home. His barracks mates generally send the photos home with thank-you notes. The shutter-snapping GI earns up to $50 a month for his efforts.

Many people are using 60-second cameras on their regular jobs to increase their income. For example, an airline employee at Idlewild Airport in New York takes photos of overseas-bound passengers in need of last-minute passport pictures. A clerk in a Wyoming drug store shoots pictures of customers who want to cash checks. The pictures give the store owner positive identification of check cashers. The clerk nets 50 cents a photo plus all the film he needs.

Some people have even made quick-print cameras full-time business aids. A tire repair service owner in New Bedford, Mass., equipped his salesmen with Polaroid Land Cameras to snap photos of cars needing new tires. The pictures included the license tags so that a clerk could get the car owners' names and home addresses. The prints were mailed with letters calling attention to the need for replacement tires. On the first day of camera operation, the firm's salesmen wrote orders for more than $500 worth of new tires.

These are but a few of the ways that picture-in-a-minute cameras can be used to make money. This type of camera is well suited to turning a fast buck because it has three great advantages: It's simple to operate, it does away with the expense and bother of a





60-SECOND photo. You snap the shutter, pull a tab and presto—your picture is printed.

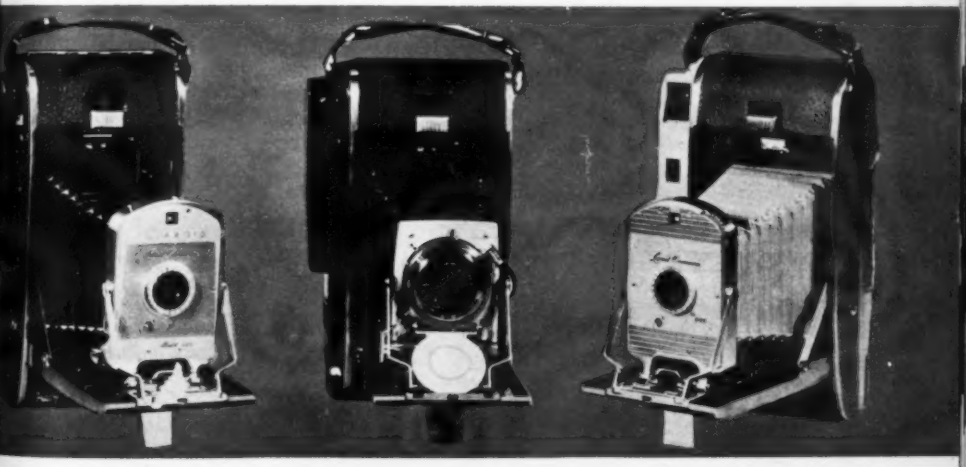
darkroom, and it delivers finished prints one minute after you've snapped the shutter. This can be a terrific stimulus to sales, for you can present a ready-to-sell photo to your customer while he's still most interested.

What are the situations that can lend themselves most profitably to 60-second photography?

One-time sales can be most lucrative. There are a lot of opportunities at the beach during the summer. Photos of surf-casters making catches, pictures of kids making their first, uneasy dashes into the surf, photos of sandcastles erected by junior engineers can all be sold for cash on the spot.

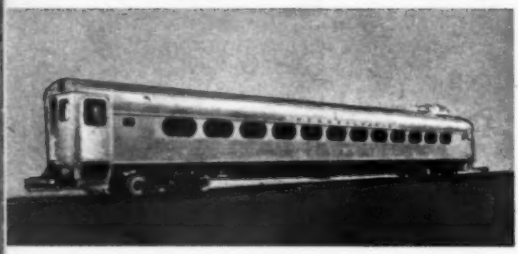
The same applies to dances, class reunions, business and fraternal conventions, summer camp activities, visits to the zoo and strolls in the park. In all of these situations you will find money-making picture opportunities if you keep your eyes open.

What should you photograph? Look for the unusual. People want to remember the high points of life—a new baby, a birthday, a big party, a wedding, a Christmas tree, First Communion, Confirmation, Bar Mitzvahs, vacation trips, special do-it-yourself projects, junior's first day at [*Continued on page* 168]



POLAROID LAND cameras: Model 150, $109.95; Model 110A, $169.50; The 800, $126.

Now See This!

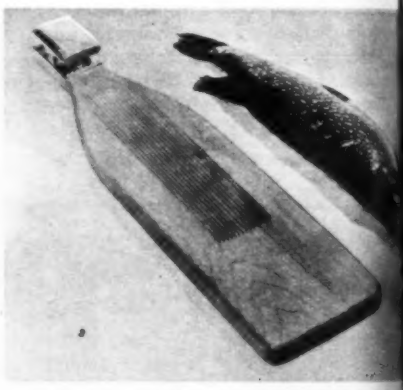


PENNSYLVANIA Railroad's new commuter car, now being tested for performance and passenger reactions, is another attempt to put mass surface transportation back on a sound basis. Called Pioneer III, the car has greater seating capacity, lower maintenance and operating costs. Each car's power comes from an overhead trolley with ground return. Up to 13 cars can be coupled together in one train. •

TRI-PHI, Inc., a Long Island electronics firm, has brought out a portable transistor radio-phonograph kit that you can put together with a soldering iron and household tools. The kit is at left; assembled unit is at right. Four flashlight batteries power the set, which has a dual sapphire cartridge, separate tone and volume controls and other features found in larger plug-in phonographs. •

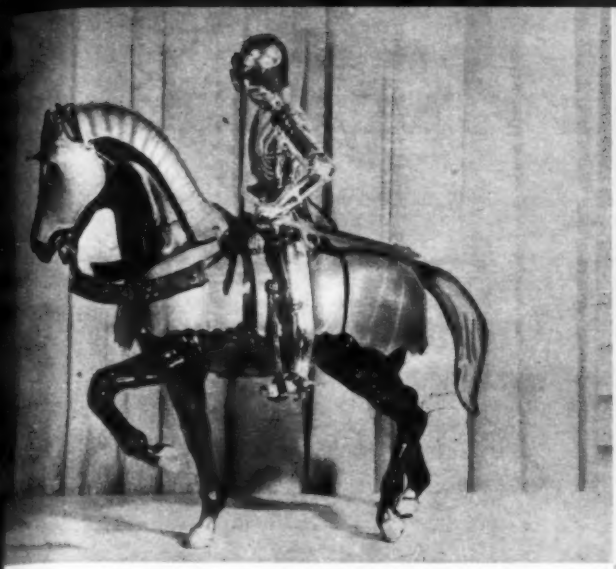
Tri-Phi, Inc., 141 Albertson Ave., Albertson, N. Y.

NESA—Pittsburgh Plate Glass Company's new defrosting system—is shown here in a lab demonstration. At left is the iced-up glass without NESA; at right is the clear evidence for the product. NESA is a transparent coating, electrically conductive, that is applied to the glass as it leaves the furnace. Voltage is applied between fired-on bus bars at opposite edges of the glass. NESA is being used to beat icing and fogging in jet aircraft. •



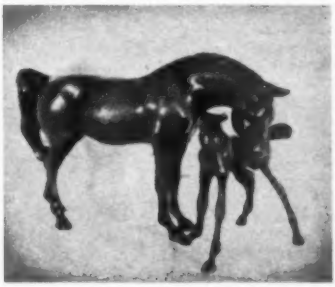
THIS fish-holding and scaling board, which its maker calls a Non-Skid Fish Cleaning Board, helps you through the slippery business of scaling your catch. The clipboard clip clamps his tail firmly, the grooves in the maple board prevent side-slipping. Rubber tips underneath keep the board in place. Sizes and prices: 4½x16"—$3; 5x20"—$4; 6x24"—$5. The device can be used while skinning and gutting the fish as well, the maker claims. •

Gardner's, Dept. 133, 230 Ave. C West, Bismarck, N. D.



HER HOBBY IS HORSES

THERE are more than 300 horses in Mrs. Esther O'Sullivan's Forest Hills, N. Y. home. However, there's never been a stampede for her equines are statuettes, like the armored knight on his steed above, and made of china, fine wood, metal alloys, plastic and stone. The widowed horse-fancier began her collection 25 years ago and the equines occupy an entire wall in her living room with more of the herd scattered about the rest of the house. •



THE SMALL, SMALL CAR STORY

FIAT 500 from Italy has top speed of 60 mph, gets about 50 mpg. The two-door rig carries four people. Its Port of Entry price, N. Y., $1,098.
Fiat Motor Co., Inc., 500 Fifth Ave., N. Y., N. Y.

AUSTIN-HEALEY SPRITE is economy car for sports aficionados. It will do 84 mph, get 40 mpg. Port of Entry price in N. Y. is $1,795.
Hambro Automotive Corp., 27 W. 57th St., N. Y., N. Y.

By Gordon Wilkins

HOW small can a small car be? European manufacturers, encouraged by the success of their small car imports, are now trying to extend the lower end of the market by bringing in small, *small* cars which, they hope, will beat sales resistance caused by low incomes, high gasoline prices and a shortage of parking space.

But economy is only part of the reason for the growing popularity of these midgets. They'll be used as second family cars that Dad can drive to the station. Or perhaps Mom will use her little wagon to pick up groceries or cart the kids to school. Many of them will be used by big-city firms to provide rapid delivery service at minimum rates in heavy traffic. And some people will buy them to give Junior convenient transportation to the campus.

These small, small cars, with a few exceptions, can be bought for less than $1,400. They are mostly four-seat vehicles with a wheelbase below 70 in. They average about 20 hp and have an engine capacity of less than 40 cubic inches.

(Editor's note: Cubic-inch displacement in an engine is determined by the volume of each individual cylinder, multiplied by the number of cylinders to get total engine capacity.)

You've probably seen many of these smaller imports on the street and wondered what they were like and where they came from. Let's take a look at some of the miniature cars which are now available in the United States.

Developed in Italy, the Isetta is now being built by BMW in Germany. An unusual feature is the hinged front which opens outward with steering wheel and instrument panel. You can park nose-first against the curb and step out onto the sidewalk. A ten-cu. in., one-cylinder, four-stroke engine delivers 13 hp by chain to the narrow-track rear axle.

LLOYD ALEXANDER TS from Germany gets 50 mpg. Port of Entry price, N. Y., $1,395.
House of Lloyd, 240 W. 54th St., N. Y., N. Y.

RENAULT 4CV. French car will do 70 mph, get 40 mpg. Port of Entry price, N. Y., $1,345.
Renault, Inc., 750 Third Ave., N. Y., N. Y.

FRISKY convertible from England tops out at 51 mph. Suggested retail price: $1,395.
British Car Distributors, Inc., Box 529, Ft. Lauderdale, Fla.

BERKELEY from Britain is 600-lb. economy sportster. It has top speed a shade over 80 mph, gets approximately 60 mpg. Port of Entry price, N. Y., $1,795.
Robert E. Lee Enterprises, Inc., 1741 Broadway, N. Y., N. Y.

Overall length is 93 in. It weighs 770 lbs. and has a 58-in. wheelbase. The Isetta provides roomy seats for two, has a top speed of 50-plus mph and gets about 62 mpg.

Lloyd Alexander TS is the latest offering from Borgward in Germany. The Alexander has an air-cooled two-cylinder, four-stroke engine of 36 cu. in. It puts out 29 hp. It has a wheelbase of 78 in. and seats four. Maximum speed is 70 mph and fuel consumption is about 50 mpg.

Goggomobil's newest model is the four-passenger T-700, the largest of its breed to date. The engine is an OHV horizontally-opposed two-cylinder, four-stroke job of 40 cu. in. which develops 32 hp. It has a top speed of 70 mph and travels about 56 miles on a gallon. Its wheelbase is 78 in. The T-700 weighs 1,400 lbs. Its price is $1,495.

You can also get a rear-engine Goggomobil. The Regent sports a 70-in. wheelbase and 10-cu. in. parallel-twin, two-stroke mill that is fan-cooled. This one does around 58 miles on a gallon and tops out at 50 mph.

BMW ISETTA 300 has unique hinged front door. German-made, 50 mph, about 62 mpg. Port of Entry price, N. Y., $1,048.
Fadex Commercial Corp., 487 Park Ave., N. Y., N. Y.

At $995 this tiny two-door, four-passenger car (slightly cramped) is the lowest priced Goggomobil. A sports coupe which looks like a scaled down Alfa Romeo and handles like a junior Porsche is also available.

NSU Prinz is a sprightly, rear-engine German car. It has an air-cooled, two-cylinder, four-stroke 35-cu. in. engine with overhead camshaft. It develops 26 hp. The power plant lies transversely across the back of the car with cooling fan and generator coupled to opposite ends of the crankshaft.

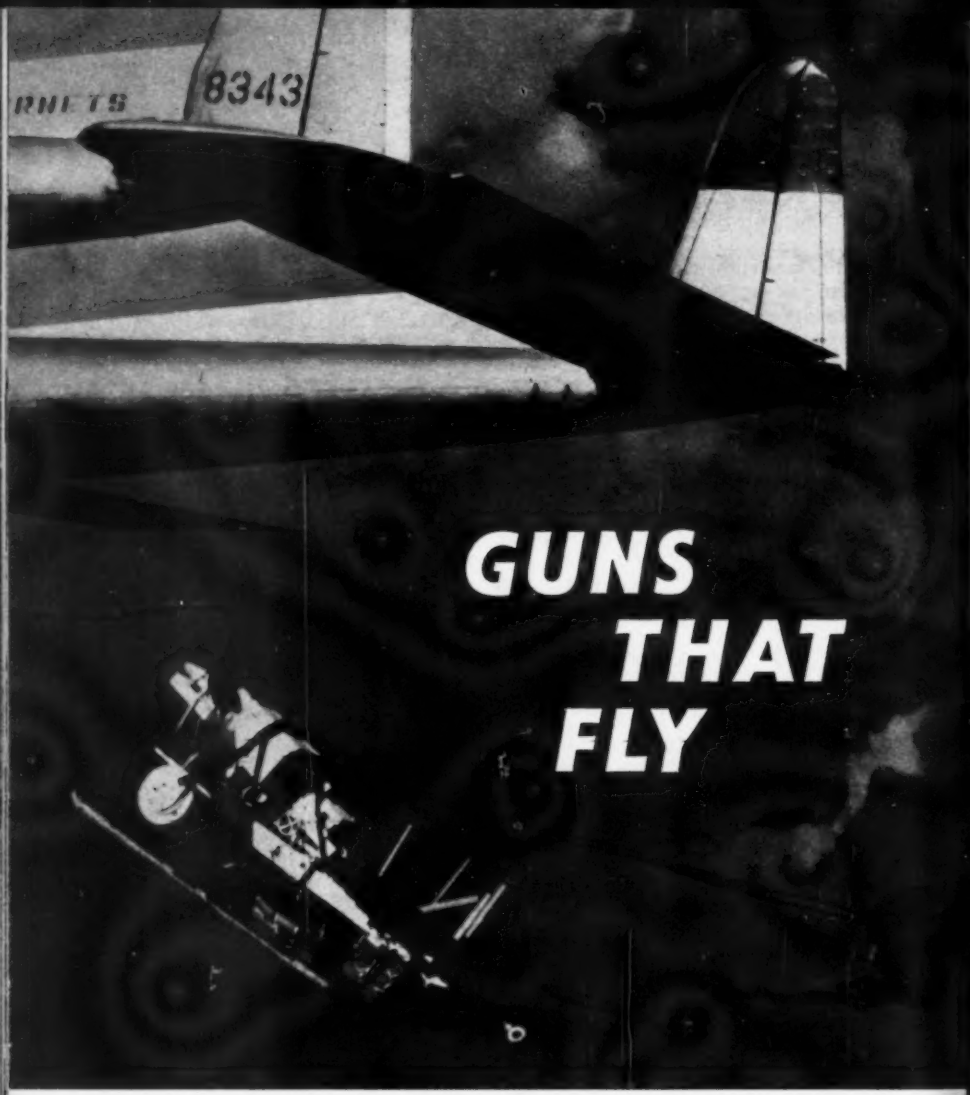
CITROEN 2CV will do 55 mph all day, get 65 mpg. Port of Entry price, N. Y., $1,195.
Citroen Cars Corp., 300 Park Ave., N. Y., N. Y.

GOGGOMOBIL goes about 50 mph, 58 mpg. Port of Entry price, N. Y., $995.
Continental Car Combine, 1726 Broadway, N. Y., N. Y.

This leaves the whole wheelbase —78 in.—free for passenger space. Top speed of this two-door, four-passenger, 1,200-lb. car is about 70 mph. It gets about 51 mpg.

In Italy, Fiat already had one of Europe's smallest cars in the 600 model. But sales were falling off and the company introduced the 500. The Fiat 500's power comes from a four-stroke engine at the rear, car- [*Continued on page* 166]

NSU PRINZ is rear-engine German car, does 60 mph, 50 mpg. Port of Entry price, N. Y., $1,398.
Fadex Commercial Corp., 487 Park Ave., N. Y., N. Y.



GUNS THAT FLY

BIG GUN is 5,000-lb. 105mm howitzer. Three 100-ft. diameter parachutes float it down.

STRAC is the abbreviation for the Strategic Army Corps, a new muscle in Uncle Sam's arsenal of counter punches. This powerful force consists of four ready-to-fight divisions that can be swiftly airlifted anywhere in the world with their equipment and supplies.

Their weapons, developed at the Aberdeen Proving Grounds, Md., will include such items as 105mm howitzers; 36,000-lb. T-92 tanks which are specifically designed for air transport; and M-56 self-propelled weapon carriers. Virtually any heavy weapons or mobile vehicles, including bulldozers, could be dropped via parachute to STRAC forces in a combat area. This new mobility would give a small striking force the firepower of a much larger group and enable it to repel or attack any would-be aggressor with modern weapons. •

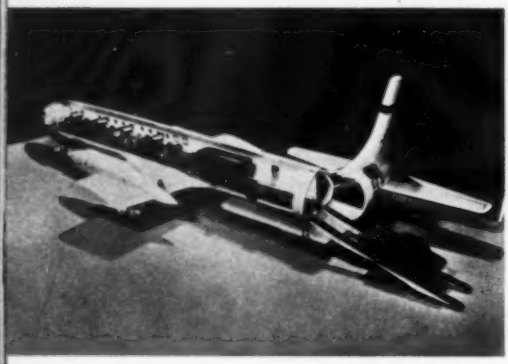
MACHINE GUN carrier is experimental job. Gunner lies on stomach and operates vehicle in the prone position.

AGILE Army Mule can carry cargo or be used to mount a recoilless rifle.

LIGHTWEIGHT M-56 weapon carrier is self-propelled, has 90mm cannon.

ROLLING out of C-133 transport plane is T-92 tank designed specifically for STRAC troops.

Now See This!

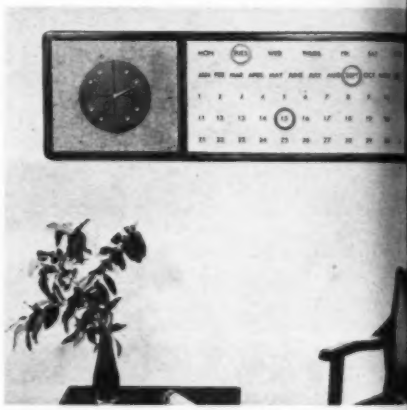


THIS cut-away model of Canadair's new CL-44 swing-tail plane shows the kind of load it can carry—four jeeps, a truck and a tank. CL-44 is also available in a commercial version. This type of rear entry permits classic straight-tube fuselage, which is better aerodynamically than other rear-entry plane constructions now available. •

HERE'S what movie Kildares, not to mention the real lancet-wielders, will look like soon. This plastic mask, being tested at Minneapolis General Hospital, has proven tremendously more effective in keeping germs out of the operating area. The air breathed out is deflected backward, away from wound. Mask can be sterilized easily. •

REVELL'S latest authentic scale model: a complete atomic reactor plant scaled from blueprints developed by Westinghouse Electric Corp. This layout could well serve as the model for hundreds of future power plants throughout the world. With each kit comes a booklet, The New World of Atomic Power. Other Revell models in its atomic series are the Savannah and the sub George Washington. •

Revell, Inc., Venice, Calif.



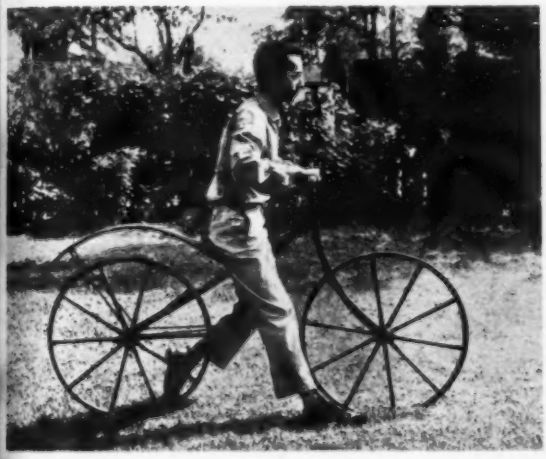
HERE'S a timepiece that will keep you apprised of the month, day, hour, and minute for years to come. You will have to keep the year in your head, which is difficult during January. The wall clock has an imported eight-day movement. The ring magnets require daily and monthly adjustments. Clock face is tangerine or cerulean with white markers, brass hands; calendar is tawny beige. The price is $79.50. •

Peter Pepper Prods., Palos Verdes Estates, Calif.

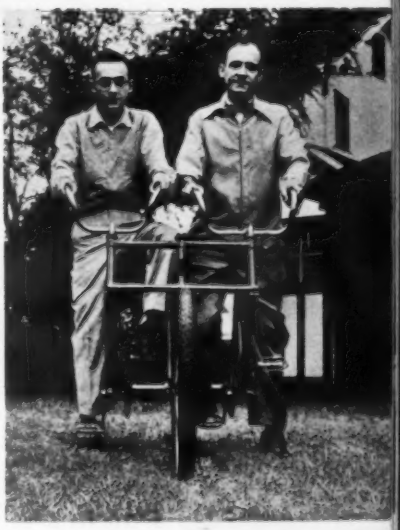
Antique Bikes

NO FEET is no mean feat on Pennsylvania blacksmith's 1869 model featuring rear wheel brake, front wheel drive.

1880 OTTO, wooden-wheeled "penny-farthing" still goes.



NO PEDALS on an 1830 French walking "bone-breaker."

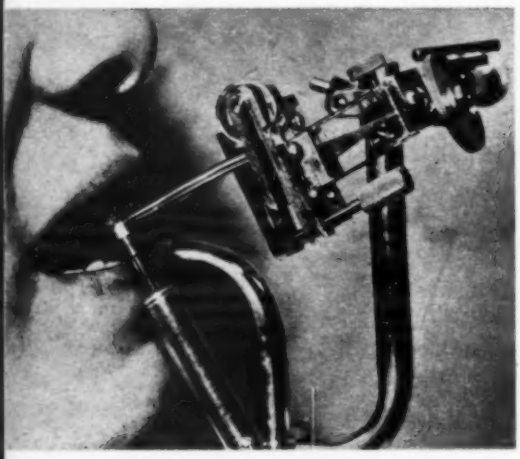


DAISY, DAISY was not invited to share a bike like this.

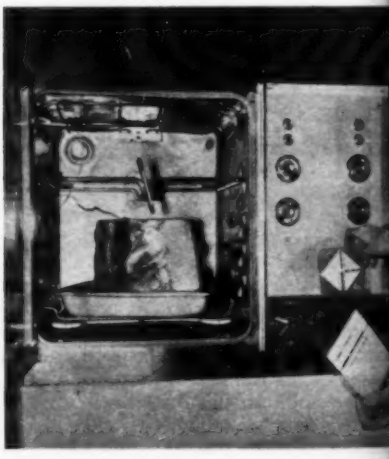
TWENTY years ago Dr. Stanley Fisher found an antique high-wheel bicycle in a farm shed. That was the beginning of his bike collection, which he keeps at his home in Bergenfield, N. J. When Dr. Fisher finds an old bike he brings it home and he and his son Arnold (the cyclist in the pictures) restore it to rolling condition. High-wheelers, whether they have the big wheel fore or aft, are tricky to ride and hell to stop; you slow down and jump. Easy for both of the Stanleys, who are expert unicyclists. •

IT'S NEW!

LOW-SLUNG rear wing on Mignet 320 also serves as elevator, makes ship safer, ea to handle. French plane cruises at 80 mph, can land, take off in less than 50 yar

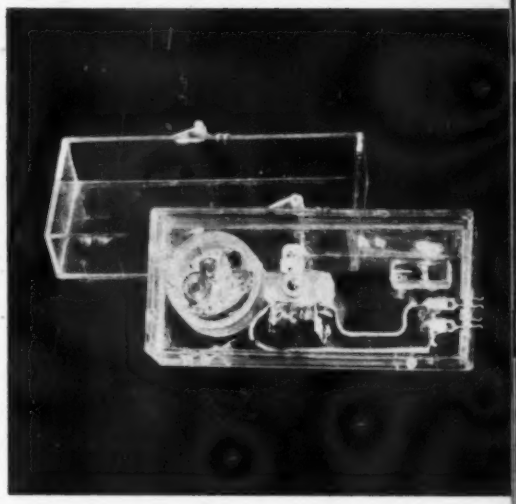


MOBILOMETER measures tooth movement to test theory that amount of movement is a clue to general health. Southern Research Institute at Birmingham, Ala., devised it.

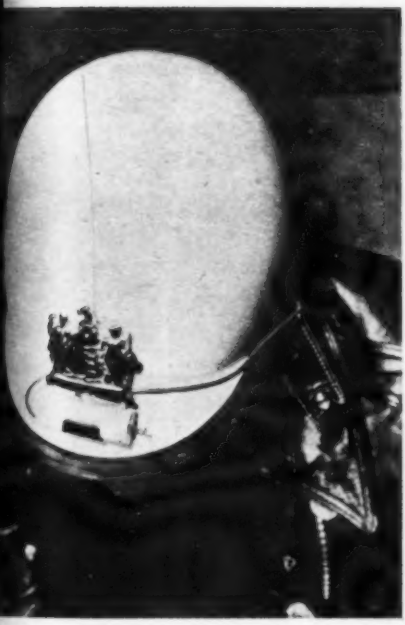


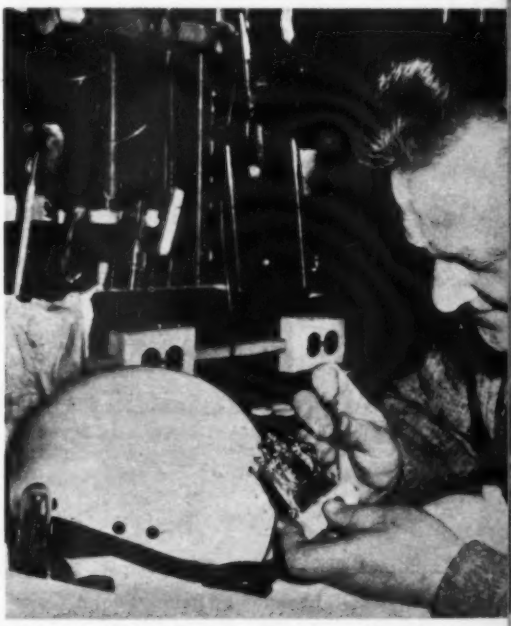
WHAT'S COOKING depends on notched plastic timer card—one for each type of food to be cooked—which automatically operates this electric oven displayed in Chicago.

MOTOR scooter exhibited at West German toy fair in Nurnberg is designed for the youngsters. Miniature scooter has a one-cylinder engine and top speed of 16 mph.



HEART-BEAT counter, worn on body, tallies the number of beats in 24-hour period. The tiny, three-ounce device was developed by engineers of Illinois Bell Telephone Co.



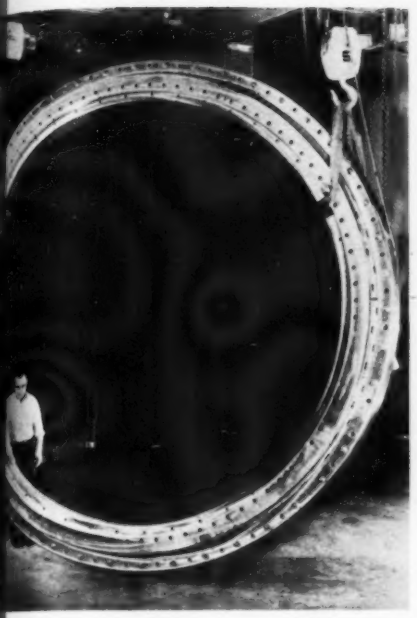


HELMET RADIO has 2½-oz. receiver under shield, with 12 to 14-mile range. It costs penny a day to operate. Larry Smith, Atlantic City, N. J., policeman, developed tiny unit.

EGG-SHAPED car is powered by a one-cylinder air-cooled engine. It has a top speed of approximately 60 mph. The English auto is called the Nobel 200 and will sell for a little over $1,100. The four-passenger car is not slated for export to the United States at the present time.

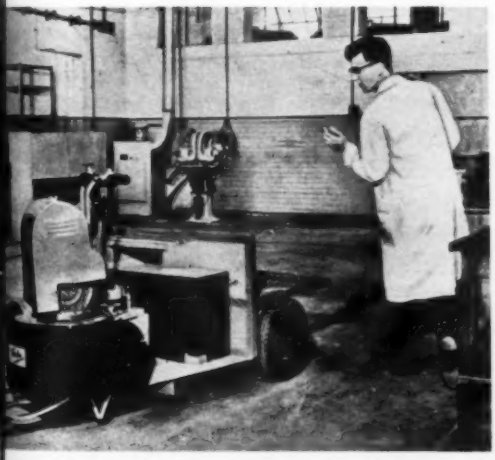
COLD ROD invented by Reidar Berg of Oslo, Norway, is winter motorcycle fitted with a ski on front wheel, tank-like treads on rear wheels for easy over-snow transport.

PUSHBUTTON telephone is being given trial by Southern New England Telephone Co. in Hamden, Conn. homes to test system, determine if fewer wrong numbers are dialed.



BIG RING—14,600 lbs. and 13 ft. 9 in. in diameter—made by Kaydon Engineering Corp. for Nike-Zeus radar system is largest anti-friction precision ball bearing ever built.

FOTO-BAG comes with a miniature built-in camera housed in small, trap-door pocket which enables user to get camera without opening bag. Handbag is an English design.



ROBOTUG operates via remote control following electric wire beneath floor. British Railways will use system. Freight vehicle also runs on batteries and automatically stops at obstructions.

SWEDISH JEEP. Swedish importer used special chassis to convert Willys' Jeep into eight-passenger vehicle. It also has two extra emergency seats.

HOT WEATHER FISHING

By Wynn Davis

EVERY month of the year I get letters from readers asking where they can be sure of catching a load of big fish. Then they throw in the bomb—"We plan to take our vacation during July or August."

Long ago I learned the futility of advising anglers to take vacations during May, June, September or October, when fishing for all game fish is tops over about three-quarters of this country. Most of us want to escape the searing heat of midsummer. But when you fish during midsummer don't blame your slim luck on the waters you fish. The fish are there but they, too, are escaping the heat or trying to. I'd say that two things defeat most summer vacation anglers—the dinner bell and the sand man. The hot-weather Waltons are either eating or sleeping when the fish are biting.

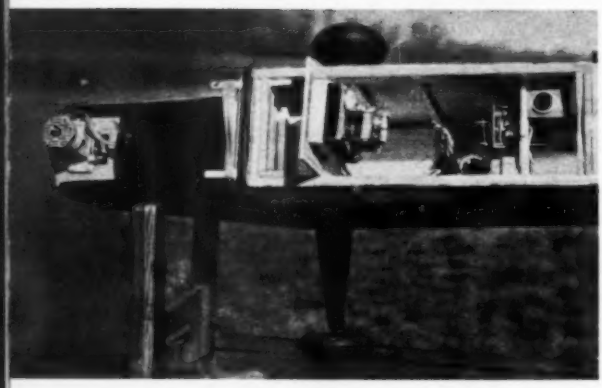
Game fish go to dinner when they are hungry, and not at regular hours of the day. For some species, the time may not be the same as for others. But in every case, the one thing that rings the dinner bell for fish is the temperature of the water. When it cools off fish become active and hungry. They move into their feeding areas: shore lines, over gravel or sand bars, near weed beds or they cruise just beneath the surface or in the tails of big pools, depending upon the species. If the water doesn't cool off in the regular feeding areas, the fish get what food they can deep down. The fishing is really tough then—day or night.

There may be a few factors that might keep fish away when the water temperature is right. Some experts, for example, claim [*Continued on page* 170]

NOT for ocean-going jaunts but plenty of fun in lake or pool is the rig being demonstrated this month by MIMI, world's prettiest product-tester. It's called Paddle-Fun and consists of an inner tube equipped with oar locks and oars. MIMI says the speed is nothing exceptional but the pick-up is sensational. From Paddle-Fun, Inc., 1985 Harlem Blvd., Rockford, Ill. It retails for about $9.95 with tube. •

MIMI

UHF Flying Model



GLOW PLUG engine is in nose, radio receiver over landing gear, escapement device in center of cabin.

YOU could hear the healthy hum of the engine as the tiny plane swooped over the field, circled once, and then made a perfect three-point landing at the feet of the man guiding it with an Ultra-High Frequency radio transmitter.

The man was Bill Winters of Levittown, N. Y., owner-builder of the radio-controlled model plane shown here.

The craft is made of balsa wood and is covered with silk and coated with aircraft dope. An escapement device, triggered by signals from the transmitter, operates the rudder. Wings and stabilizer are se-

BOOSTER battery starts the engine and is disconnected once powerplant is running.

ENGINE burns alcohol-base fuel and does not require ignition. Here it is injected.

cured with rubber bands to minimize damage in the event of a crack-up.

A strip of rubber is wound with a hand drill to provide muscle for the escapement to turn the rudder. A milliammeter plugged into a socket in the model plane permits sharp tuning of the receiver, with the transmitter turned on. The engine burns an alcohol-base fuel and does not require ignition, other than a glow plug which is heated for starting the propeller by a small booster battery. Once the engine is running, the battery is disconnected. The pilot runs a few steps and launches the plane into the wind.

Radio transmission is in line of sight and the hand-held transmitter is aimed at the plane like a gun.

Radio-controlled planes have become so popular that the Federal Communications Commission has provided frequencies for the use of hobbyists. The model shown here operates on a frequency of 465 megacycles.

Radio-control kits to fly model planes run from $20 to $200 in price. You'll find them a lot of fun. •

TRANSMITTER on, milliammeter plugged into socket permits sharp tuning of receiver.

TAKE OFF! Pilot runs a few steps and then launches radio-controlled plane into wind.

MCCAHILL TESTS

The FACEL-VEGA

SPORTSMAN Jack Rutherfurd of Palm Beach-New York lent Tom Facel-Vega.

TEST CAR SPECS

MODEL TESTED: **Facel-Vega coupe**

ENGINE: Chrysler 300

Wheelbase **104.7** ins; length **181** ins; height **53** ins; width **70.8** ins; front tread **55.9** ins; rear tread **57** ins. Weight **3,885** lbs. Gas tank capacity **27** gals. Turning circle diameter **38** ft. Tire size **6.70X16.**

PRICE (without optionals): **$9,000**

PERFORMANCE: **0-30** mph, **3** secs; **0-60** mph, **7.9** secs; **40-80** mph, **4** secs. Top speed **130** mph. All times recorded on corrected speedometer.

Uncle Tom reports on a new $9,000 French beauty: "A remarkable and wonderfully satisfying road companion."

By Tom McCahill

THE Facel-Vega is dreamstuff for the guy with enough guts (and dough) to dream big. Sexier than the Place Pigalle and throatier than a Russian basso, this French beauty is built right in the center of Paris, is powered by a Chrysler 300 engine and has enough on the ball to raise the blood-pressure of a mummy.

The Facel-Vega in some ways reminds me of the Italian-American Vignale Cunningham of a few years ago. This is not a bucket for the conformist but may prove a terrific rig for the sports car connoisseur who wants a cross-breeding of the best, meaning a functional European coupe that has sports car handling and the performance of a race car. It's a 130-mph hack that

will break 0-60 mph in less than eight seconds and still provide luxurious interior comfort for driver and passenger.

Oddly enough, the Facel-Vega with a price tag of roughly $9,000 is one of the cheapest offerings with so much quality and looks available in the world today. Usually cars with this much swashbuckle and appeal, obviously in the beluga caviar class, sell for considerably more.

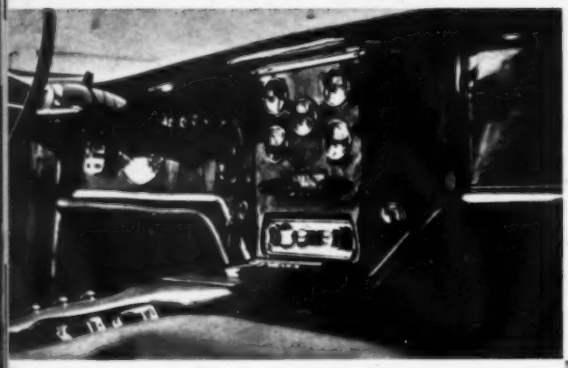
My test car was supplied by Commander Jack Rutherfurd, who not only owns the Vega but is the proud possessor of a dozen or so other mouth-waterers as well. Mark Twain once reportedly said, "You may know a man by the horses in his stable." One look at Jack Rutherfurd's stable either at his winter home on the lake shore at Palm Beach or at Sands Point, Long Island, and you'd know instantly that the guy who lives there isn't any ribbon clerk. Seventy years ago when the Good Lord was handing out swashbuckles he gave a whole case of them to Jack. I've had readers ask me on occasion, when we do a piece on a particularly exotic car, "What kind of people buy those things?" So here's a thumbnail description of

SHAPELY models. The one with wheels has 104.7-in. wheelbase. It is 70.8 in. wide, seats four people and weighs 3,885 lbs.

Jack Rutherfurd, the kind of man who buys Facel-Vegas.

Jack might very rightly be called the Dean of American Sportsmen. A well-known World War I Navy flier and later test pilot, during World War II he was Commanding Officer of the Willow Grove Naval Air Station in Pennsyl-

GENTLY rounded curves and absence of tail fins keynote simplicity of rear-end design.



DASHBOARD with walnut finish houses the instruments. Car has Chrysler 300 engine.

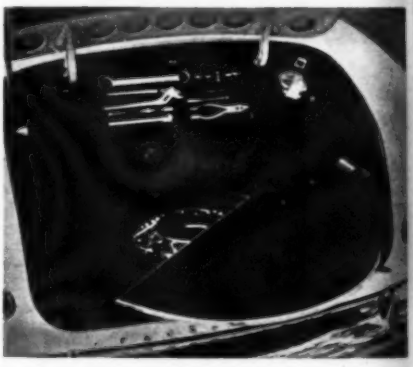
vania. He has raced airplanes and won automobile races and hill climbs as far back as 1908 and 1909. He has copped most of the major speedboat trophies in the world including the President's Cup (which was personally given to him by Frank Roosevelt), the Wanamaker Trophy, the Harmsworth Trophy and international silverware for winning at Lake Como in Italy and Lake Geneva in Switzerland. A lot of these things happened some time ago and you might ask, "Okay, but what's he done *lately?*"

Well, Jack made the fastest time during Speed Weeks 1958 with his D-Jag at an average speed of 163 mph. He has won speed trials in recent years in 4.1 Ferraris and C-Jags and he made the fastest time in the passing test in 1958 with his Bonneville Pontiac (only to be disqualified for going over the shoulder line). Add to this the fact that, at 69 years of age, Jim McMichael and I were with him when he was insulted by a young punk who outweighed him by a good 40 pounds. Without batting an eyelash, Rutherfurd floored him for the count. That, kiddies, is what I call a man!

Jack is a gentleman of the old school, the type the Facel-Vega appeals to. A cruise through his Florida garage shows that he's causing the relief agencies no trouble whatsoever. There you'll find a Cadillac Eldorado Brougham, a 190-D Mercedes-Benz diesel, his D-Jag (which finished third in the 1959 1,000-kilometer sports car marathon at Daytona), a 300SL Mercedes, a '58 Pontiac station wagon and the Facel-Vega which he uses for his go-to-the-store car. If you're invited for cocktails (and we were), you stroll down Jack's dock and board his 90-ft. yacht which has a circular bar only 18 inches smaller than Toots Shor's. However, before delving into the booze, let's go back to the Facel-Vega.

Built [*Continued on page* 162]

LEATHER seats, fore and aft, each have a big, comfortable arm rest separating them.



SPARE is kept under trunk deck covered by slide-off lid. Tool kit comes with the car.

Now See This!

DOTTY, if you like, but some drivers feel they give a sporty look to whitewalls, especially in motion. The dots, called DOT-O-WOLS, cement permanently to the tire, will withstand, it is claimed, any amount of curb-rubbing. •

Dot-O-Wol, 1126 S.W. Morrison, Portland, Ore.

J. LOUIS REYNOLDS, executive VP of Reynolds Metals, displays model of first-ever deep-diving aluminum sub. Firm is designing it for three-miles-down exploration, hitherto impossible. •

WHEREVER flagmen or temporary signals can be used, these portable, battery-operated traffic signals will fill the bill. They have manual or automatic controls, can be plugged in. •

A NEW spot for the gas meter and pressure regulation installation—underground, in watertight housing at base of old-fashioned gas light. Window at base plays dial. •

Rochester Gas And Electric, Rochester, N. Y.

McCAHILL TESTS

the MERCURY

NICE TOUCH. Tom liked Mercury's looks. Simulated wood paneling is Fiberglas.

REAR END styling is neat, simple. Window opens by sliding down into the tailgate.

By Tom McCahill

MY '59 test Mercury was a four-door "Colony Park Country Cruiser Station Wagon"—and if that isn't a hunk of nomenclature, you can part my skull with a spade and plant a lily in the pulp. For power it was equipped with the medium-size 383-cubic-inch V8 with a single smokestack. This job is also available with a smaller mill of 312 inches or a thundering giant displacing 430. Actually, the 383-cubic-inch rig is a good high-speed combination with one fault which its larger-engined brother

"A solid automobile . . . Sops up bumps like a fat girl on a skating rink . . . At high cruising speeds it loafs along hour after hour without effort."

BIG M racked up a 111.6-mph average for ten miles on Daytona Speedway, handled corners beautifully, says Tom.

FRONT VIEW reveals rather conservative taste by '59 auto standards.

EASY to reach spare is vertically mounted at side. Third seat folds under the floor.

TEST CAR SPECS

MODEL TESTED: **'59 Mercury Colony Park Country Cruiser**
ENGINE: **V8** cyls; **383** cubic ins; **322** brake hp; **420** ft-lbs max torque; **10** to **1** compression ratio. Bore **4.30** ins; stroke **3.30** ins; Fuel required: **Premium.** Standard axle ratio: **2.71.** Wheelbase **126** ins; length **218.6** ins; height **57.8** ins; width **80.7** ins; front tread **60** ins; rear tread **60** ins. Weight **4,641** lbs. Gas tank capacity **19.5** gals. Turning circle diameter **43.3** ft. Tire size **9.00x14.**
PRICE (without optionals): **$3,932.**
PERFORMANCE: **0-30** mph, **4.7** secs; **0-60** mph, **11.9** secs; **40-60** mph, **6.4** secs. Top speed **115** mph. All times recorded on corrected speedometer.

PUSHED-BACK dash allows more comfort and knee-room. Buttons control windows.

probably doesn't have. The fault is a lack of go in the passing ranges when you want to dig out and make an end run around the milk trucks and scooter people.

Twenty years ago when the Mercury was born, it was simply a big, deluxe brother of the Ford. As one high hunk of brass told me at the time, this car was what Ford really wanted to build but couldn't in a highly competitive market. Ten years later, in 1949, Mercury broke the old fraternal ties and shot off on its own. For the first time it was coupled with the Lincoln division and became a deluxe little Lincoln rather than a great big Ford.

Since 1949 Mercury has been shuffled into a half-dozen corners. It was more or less the experimental car of the Ford interests until the Edsel popped up. In 1957 Merc introduced on these shores what some critics considered the wildest departure from classic design since John Barrymore broke his nose. That styling seems somewhat tame today and the '59 car turns out to be a good-looking, fairly conservative offering with only a minimum of launching-pad overtones.

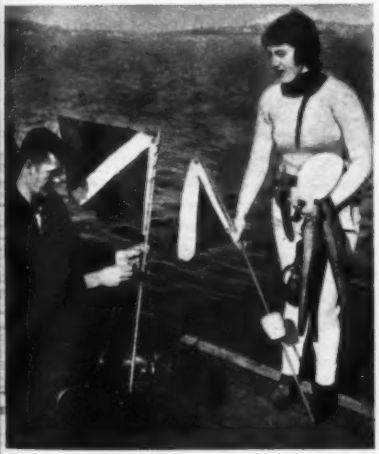
You old, old readers (the ones with beards) may recall that years ago I was quite a Mercury fan and owned several, including one in which I crossed the Rockies through a raging blizzard. A lot of love affairs have gone over the dam since then, so to bring you a current look-see at this newest of Mercurys, made a 2,000-mile test which revealed many facts that might have been overlooked in a quick twirl around the park.

My test run started in New York City, proceeded down the Penn Turnpike, the New Jersey Turnpike, U.S. #301, U.S. #1 and U.S. #17, ending up at Daytona Beach, Fla., where I made some high-speed runs on the new Daytona International Speedway, plus many braking and acceleration tests. From the track I took the Merc over to the famous beach where I made a number of controlled spins to check out the car's handling properties. But let's get back to its over-the-road qualities.

At high cruising speeds this wagon loafs along hour after hour, at just about any speed [*Continued on page* 160]

WARNING—SKIN DIVERS BELOW

DIVER'S BUOY—an inner tube rigged with the warning flag—can support three divers.



TWO TYPES—a tube-supported signal and self-contained unit with staff in float.

THE most dreaded peril of skin-diving, among initiates, is not giant squids, the bends, barracuda nor immersion foot—it's motorboat propellers. Unfortunate divers have brushed the blades of propellers with results so permanent that divers have learned to fear surfacing more than anything below. So now the Great Lakes Divers' Club of Michigan has created a new red and white warning flag that is fast gaining international acceptance. The signal is handy in the Pacific Northwest, too; up there the seal hunters are apt to mistake the gleaming head of a diver for that of a hair seal, which has a $5 bounty on its snout.

So—when cruising around, stay 100 yards away from this signal. Some boatmen have actually approached it out of curiosity, making it an extra hazard instead of a lifesaver. Skin-divers hope that the signal will become widely known. •

TANK FARM stores vital fuel which is pumped in from the ships standing off shore.

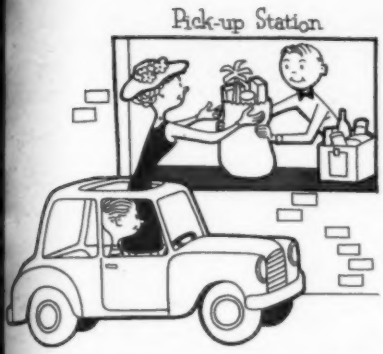
Leathernecks' FUEL FARM

SUPER service stations in the form of 10,000-gallon fuel tanks made of rubberized fabric would keep Marine Corps' vehicles and aircraft supplied with fuel under combat conditions. The tanks, which weigh about 600 lbs. and can be folded for storage, would be filled via pipeline from tankers off shore. The fuel can be pumped from ship to tank at a rate of 350 gallons per minute.

A tank farm can be set up right behind the front lines. Each rubberized tank is 40 ft. long, 11 ft. wide and four ft. high. The tank farms can be large or small, according to combat demands. The fact that they can be dispersed over a wide area would make it extremely difficult for an enemy to completely sever the flow of vital fuel. •

BUOYANT fuel lines speed steady flow of the gasoline to the inland storage tanks.

EASY dispersal of 40-ft. long tanks makes it extremely difficult to cut fuel supply.



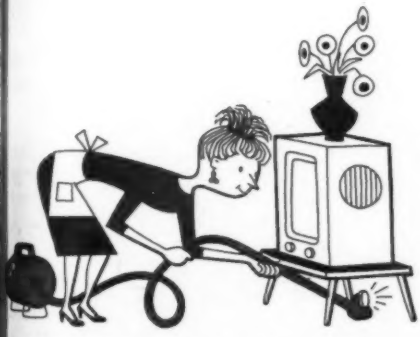
GROCERY PICKUP stations in supermarkets to save the long carry to the buggy. Mrs. M. H. Sutherland, Lake Odessa, Mich.

SELF-TIGHTENING skates—just push a button for snug, secure fit. Easier on Daddy as well. Larry Tice, South Bend, Ind.

PNEUMATIC CHAIR—so wherever you are you can say "Junior, blow up Grandma's chair for her." E. D. Foulds, Nanaimo, B. C.

INVENTIONS WANTED!

Is there a gadget you think should be invented? If so, send its description to Inventions Wanted Editor, MECHANIX ILLUSTRATED, 67 West 44 St., N.Y. 36, N.Y. Each one printed will be awarded $5.

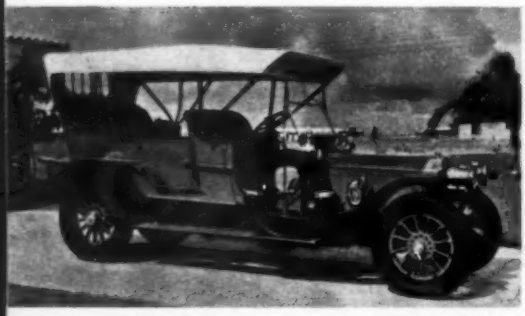


DIRT HUNTER light on wands of tank vacuum cleaners, for better cleaning in dark places. Edward Carlson, Dorchester, Mass.

QUART MARKS on sides of sinks would be useful for starching and other household mixing jobs. Ann Morizzo, Wyckoff, N. J.

HEAVENLY days for the Newman clan. The big car has top speed of 75 mph. travels eight miles on a gallon of gas.

1908 ROLLS-ROYCE



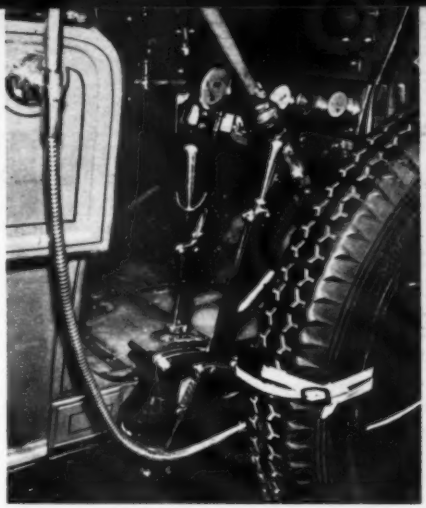
JAUNTY 50-hp auto sports a beige touring top, a bright red body and black fenders.

A MECHANICAL thing of beauty is the 1908 Rolls-Royce Silver Ghost which was superbly restored at a cost of some $5,000 by its owner, Millard Newman of Tampa, Fla. Newman, an old-car tinkerer in his spare time, wanted to rebuild an old Rolls-Royce and finally found one on Long Island, N. Y.

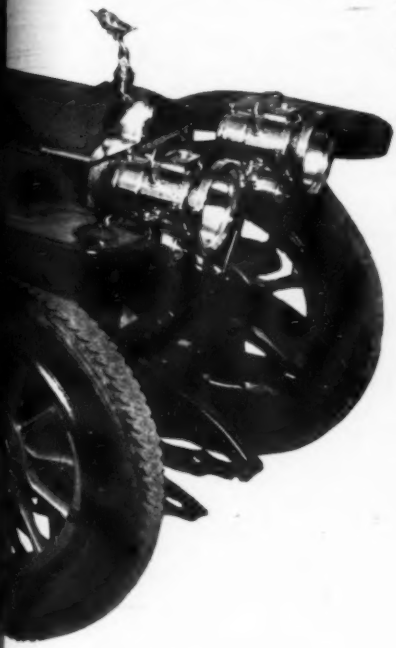
The car was shipped to Newman in Tampa during a cold spell. The six-cylinder engine is composed of two three-cylinder blocks and both of them arrived cracked. Newman wrote to the factory in England and not only got the last two blocks known to be in exist-

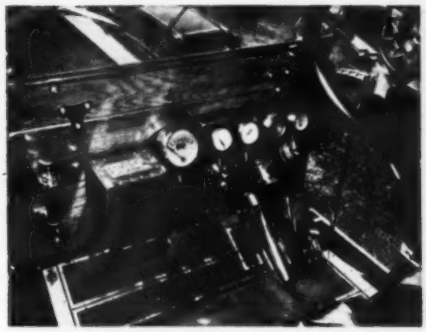
ence for his model, but also much helpful rebuilding information.

Newman then acquired a seven-passenger Locomobile-made body designed especially for his vintage auto. At last, with its gleaming brass accessories and parts, and 17 coats of hand-rubbed paint, the brilliant red, 5,300-lb. car with its huge 145-in. wheelbase was ready to roll. Newman's automotive dream had become a reality. •



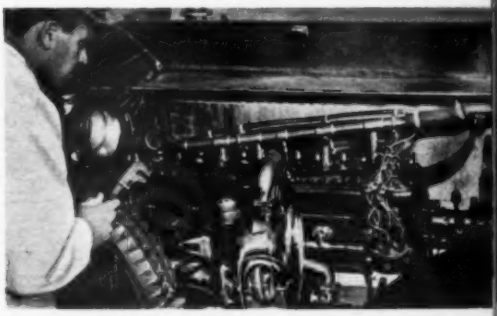
STURDY floor gearshift and brake are on driver's right. Tubing conveys air to horn.





DASHBOARD has speedometer, odometer and fuel and oil gauges, clock and ammeter.

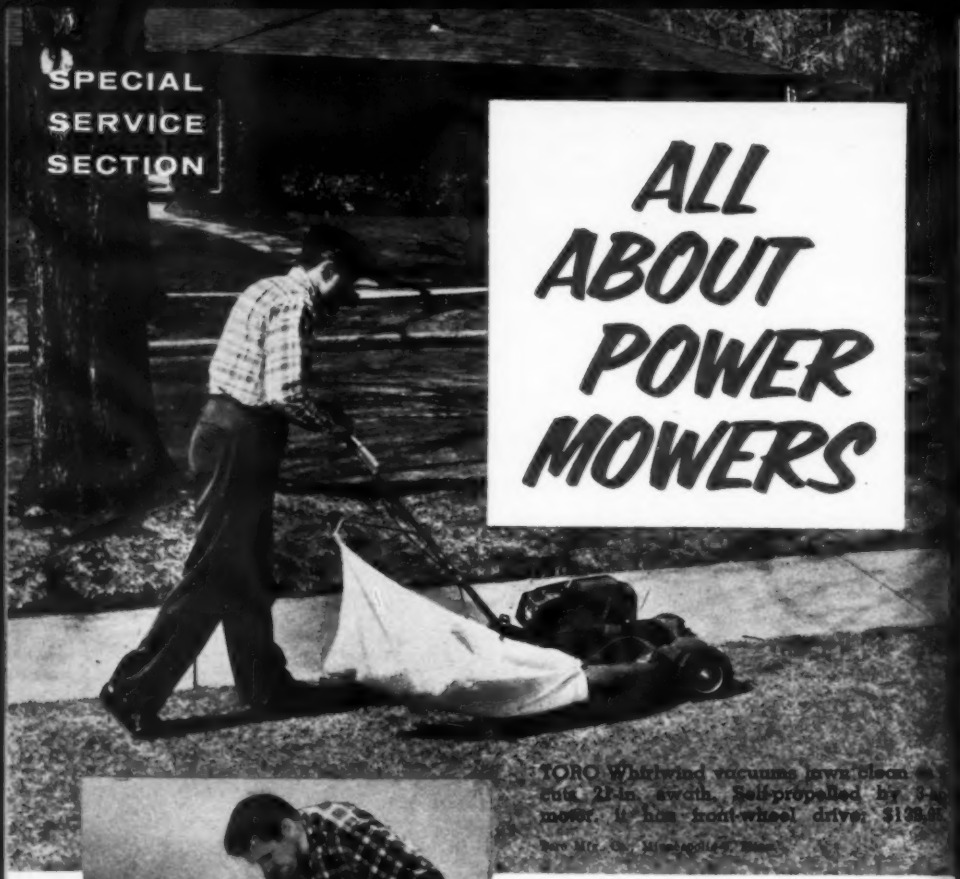
JUMP SEATS are in rear of car. The body is heavy teak wood, upholstery is leather.



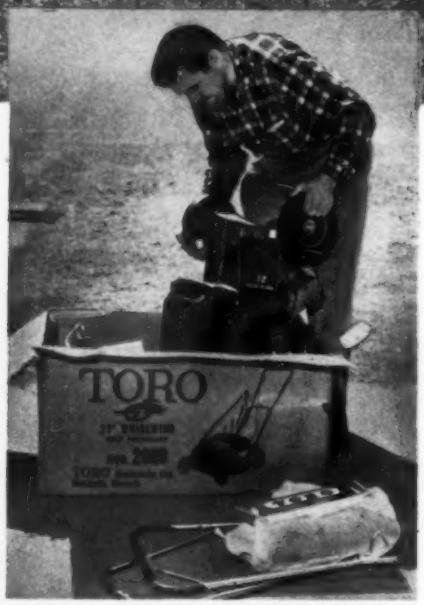
ROLLS-ROYCE engine is over four ft. long. It has 4.5-in. bore and 4.75-in. stroke.

SPECIAL SERVICE SECTION

ALL ABOUT POWER MOWERS



TORO Whirlwind vacuums lawn clean as it cuts. 21-in. swath. Self-propelled by 3-hp. motor. 4-bar front-wheel drive. $139.95. Toro Mfg. Co., Minneapolis, Minn.



WHIRLWIND comes assembled except for the handle, controls and grass catcher.

By Al Bernsohn

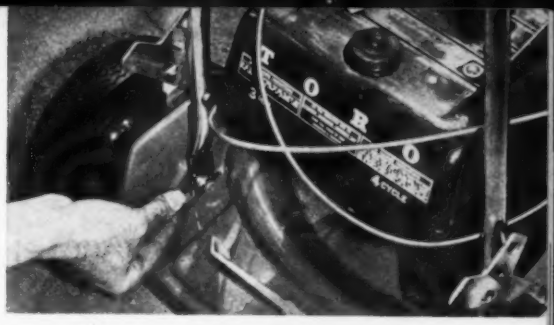
CHECK with the manufacturers of power mowers and you soon find you're on a battleground that makes Gettysburg almost seem like a tea party. Die-hard advocates of reel mowers stoutly contend that rotaries fray grass ends and make a lawn look like an amateur haircut. The more numerous rotarians snap back that reel-types can't handle grass longer than a toothpick and are old hat anyway. Similarly, the riding mower guys and the self-propelled boys snoot those who push their own. In another corner, champions of the wide-swath cutter contend that the narrow-gauge users are killing themselves with too much exercise. It all means that buyers of 1959 power mowers will run a confusing gauntlet of

conflicting arguments when they go shopping. But there's much to be said for each type of mower—and said without crossed fingers.

In 1959, the mower-makers are showing new features aimed at operating convenience and safety, such as instant height-of-cut adjustment, start and stop controls, fully-guarded cutter housings, low-cost automatic rewinds and electric starters.

Also new this year are rotary models that vacuum the lawn while cutting and riding mowers that feature automotive-type transmissions, foam rubber seats, pneumatic tires, automatic starting and power steering.

Before getting into all the refinements, it would be well to differentiate between the types of mowers and how they work. The blade of the rotary is attached directly to the shaft of an engine mounted vertically. Thus the blade whirls in a horizontal plane. Its cutting action depends on speed rather than sharpness so it should move



HANDLE for Whirlwind is positioned on studs in mower housing and secured with cotter pins.

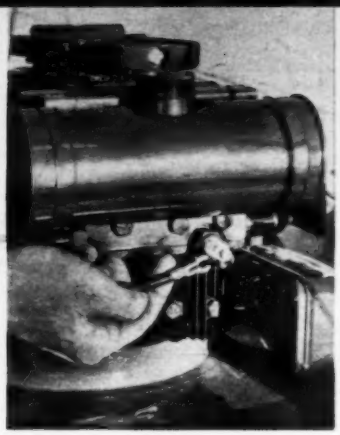
WING NUT holds discharge chute under hinged deflector. That's leaf mulcher in foreground.

BAG goes on chute, is held in place by draw string at neck.

CUTTER BAR should be kept clean and free of grass masses. A screw holds it, must be drawn up tight.

AIR CLEANER must be taken out occasionally, tapped gently to clean.

FACTORY sets idle screw but resetting may be needed.



SPARK PLUG lead is disconnected to prevent accidental start when working on mower.

OIL SUMP is filled to overflow point with good grade of S.A.E. 30 oil, has a 1¼-pint capacity.

at about 3,800 rpm—much faster than a reel mower. Rotaries can utilize two- or four-cycle engines and many are electrically powered. The most popular type is hand-propelled with the engine turning the blade and the operator pushing the mower. However, a rotary which cuts a real wide swath is usually self-propelled, with the engine turning the blade and the wheels and the operator merely guiding. The average life of a rotary mower is three and a half to five years.

In the power reel mower, the engine and its shaft are horizontal and the power is transmitted to the wheels by a chain, belt or gear mechanism. The wheels, in turn, move three to five blades that shear the grass against a stationary cutting bar. It's basically an application of power to the old-style hand mower. Most often, a four-cycle gasoline engine is used, though many reel mowers are driven by electric motors. The reel machine has an average life of seven to ten years. Both reel and rotary

REGULAR GAS is used. Since Whirlwind has 4-cycle engine, oil isn't mixed with the gas.

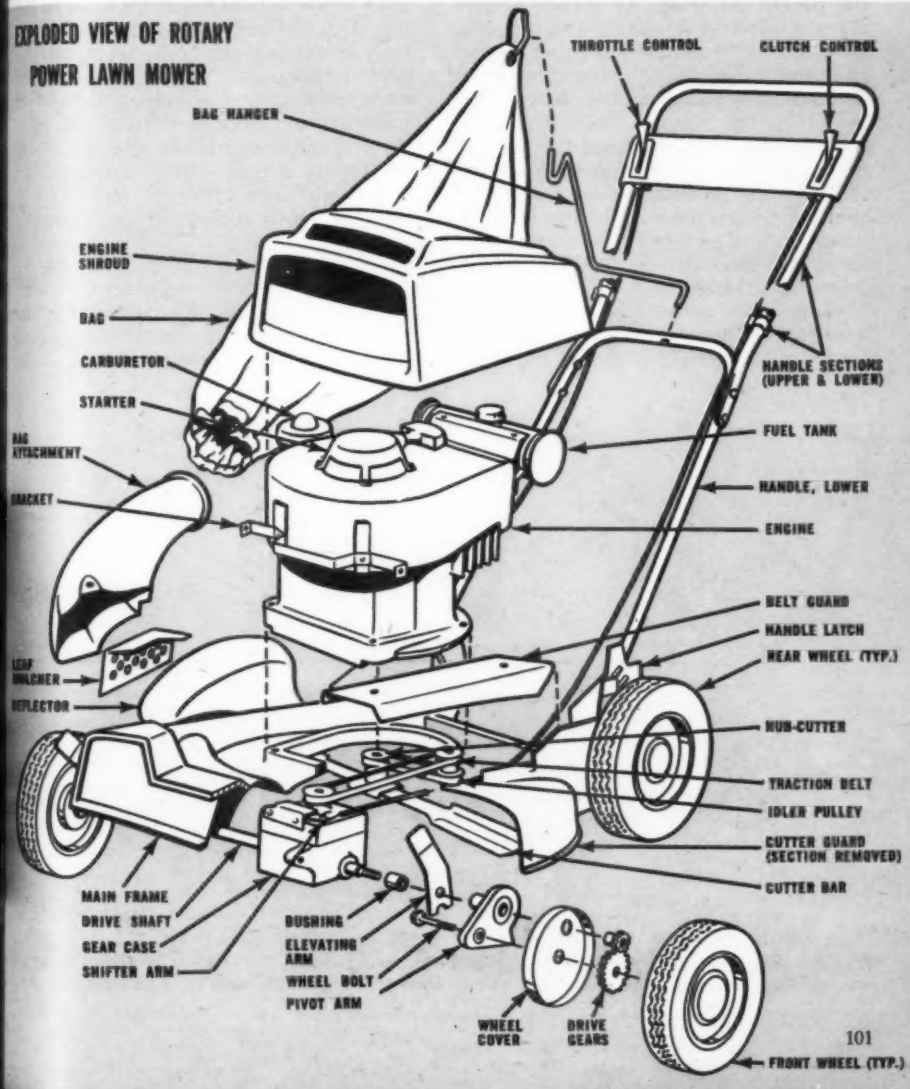
CUTTING HEIGHT is adjusted by means of levers which alter wheel height.

STARTING is simplified with recoil starter; the pulley has rewind spring.

types are built as riding mowers, too, in which case the frame and engine are of sufficient capacity to carry the operator.

Harking back to some of the old weed-whackers, we find the faults which design and engineering have sought to eliminate in the new models. The old machines usually were moody about starting. Also, they sat on four equally-spaced wheels and, when they hit a little rise

WHEELS must be disengaged when starting engine: this is done with lever indicated.



in the ground, scalped it clean of turf. They'd swath along nicely until they hit a rock. Then, if it was a little one, they'd send it rifling back at the operator. A big rock might mean a completely ruined crankshaft.

Today, there's not a criticism leveled at the old clunkers that at least one manufacturer hasn't been able to checkmate. To start, let's consider what they've done about reducing noise. Lawn Boy's Quietflite is built on the "bottled sound" principle, like the Evinrude and Johnson outboard motors of the parent company. To isolate engine vibration from the handle and housing, the engine is mounted on rubber shocks and thick Fiberglas sound-trap material shrouds the power plant. Air enters from the front, hitting a baffle which deflects it from the ceiling to the engine. And the housing is die-cast aluminum, considerably "quieter" than steel. This keeps operating noise at the level of conversation and you can't hear it from 60 feet away. Quietflite is a 19-inch rotary priced at $114.50.

Many other mowers have mufflers to deaden the engine sound and lower it to a more pleasant pitch. Some build up back pressure and curb full power utilization. Larger mufflers don't seem to put as much of a lid on power as do the smaller ones. Shrouds of aluminum, Fiberglas or polyethylene, in addition to dressing up the mowers, tend to have some reducing effect on the engine noise.

Perhaps the next most dramatic development is in the vacuuming of lawns. The old idea of a lot of mulch being just dandy for all types and lengths of grasses is no longer fully accepted. A heavy build-up of grass clippings on a lawn tends to hold moisture close to the top and Mother Nature, being just as lazy as anyone else, puts on a shallow rooting program. With occasional dry weather, that type of lawn can burn up without excessive watering. At least three manufacturers are offering closed containers for capturing the cuttings, leaves and other debris their rotary mowers cut or suck up from lawns this year.

A cloth bag attached to an accessory chute is the container used by Toro with its 19-inch rotary, Whirlwind. On the wind tunnel principle, this machine sucks up grass clippings, stones, sticks

ATLAS-AIRE 24-in. rotary has a 3-hp. 4-cycle engine.

Atlas Tool and Mfg. Co., 5147 Natural Bridge Blvd., St. Louis 15, Mo.

SAVAGE 21-in. reel mower has recoil starter; $142.50.

Savage Arms Corp., Chicopee Falls, Mass.

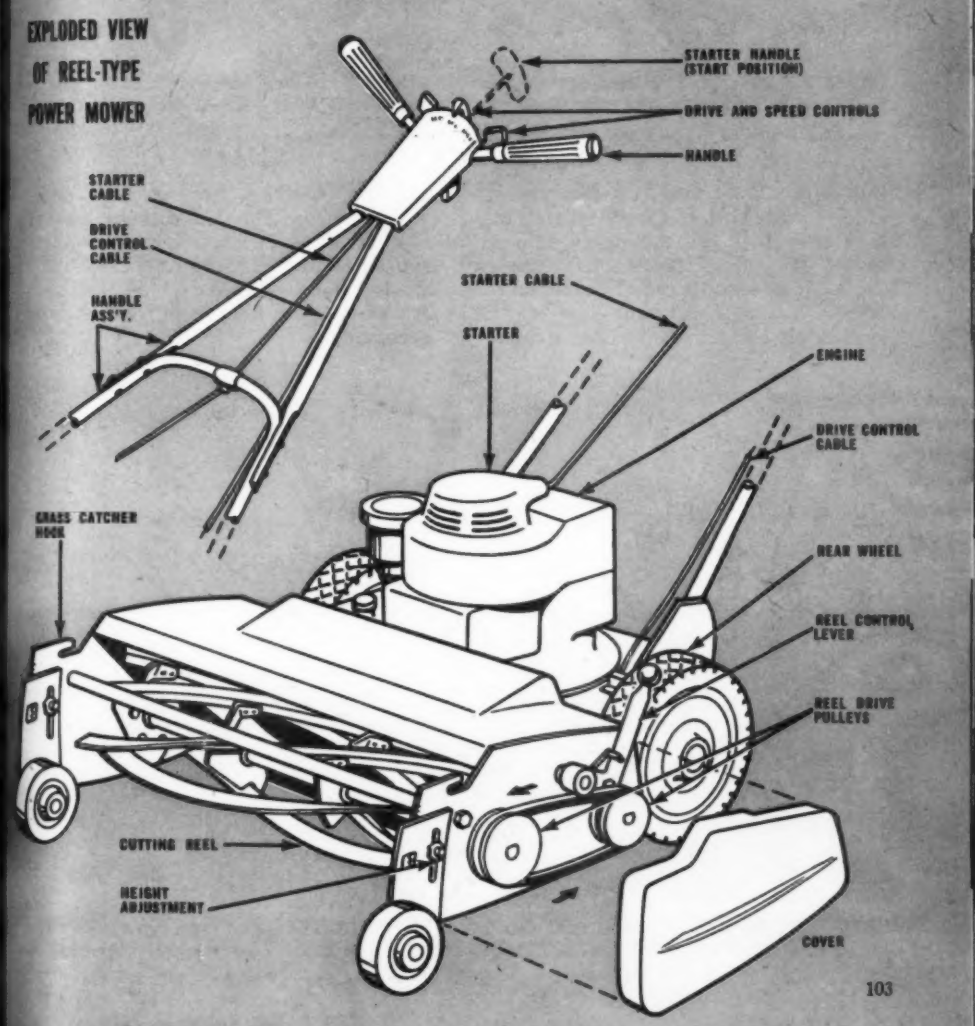
GREAT LAKES 24-in. rotary type has 3-hp engine.

Great Lakes Tractor Co., 510 Hanna Bldg., Cleveland 15, Ohio

and debris. Mower, bag, chute and leaf mulcher carry a combined price of $89.95. A polyethylene box is used by Jacobsen on its $139.50, 18-inch Turbo-Vac. And Sensation's Mow-Blo machines discharge from above the blades into wide screen catchers on one side. Sensation offers an electric Mow-Blo at $135 and a gasoline model with turbo pump (air channel) at $90 to $110, depending on the motor, both in the 20-inch size. The vacuum of these types of machine freezes the blades of grass upright for cutting. They even cut damp, limp grass easily.

Vacuuming doesn't mean that the industry is about to abandon mulching, however. Almost every manufacturer offers a mulching attachment, either standard equipment or optional, for grinding up the leaves.

Electric starters have risen mightily in popularity and are much easier to operate. Bolens has Step-O-Matic starting. Just step down on the handle and, so the catalog says, "feel the engine spring



HOMKO'S 22-in. rotary has six forward speeds, a recoil starter and side discharge.

Western Tool & Stamping Co., Des Moines, Iowa

SCOTT'S electric rotary, $119.95, has a 50-ft. reel. Extra 125-ft. reel costs $29.95.

O. M. Scott & Sons, Marysville, Ohio

into action." Jacobsen's accessories include a push-button electric starter, battery operated, *and* a battery charger. Lawn-Boy offers an electric starter. Moto-Mower has its recoil starter on the handle, where hands and feet can be kept safely away from the engine during starting. Reo has an optional starter working from 117-volt current. Savage also has an electric starter as does Sensation. Those still using rope are usually the lower-priced units. GE sells an electric starting kit to fit most rotaries as an accessory.

LAWN-BOY Automower comes in two sizes: an 18-in. is $124.50 and a 21-in. is $134.50.

Lawn-Boy, Lamar, Mo.

MOW-MASTER 22-in. push-type rotary has "step-to-start" 2½-hp engine, costs $89.95.

Propulsion Engine Corp., 311 Marion Ave., S. Milwaukee, Wis.

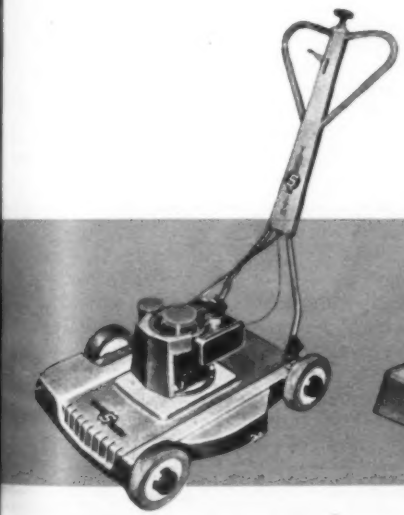
MOTO-MOWER deluxe 18-in. reel type has a 2-hp. 4-cycle engine. The cost is $119.95.

Moto-mower, Inc., Richmond, Ind.

SUNBEAM self-propelled electric reel mower is priced at $129.95. It cuts 20-in. swath.

Sunbeam Corp., 5600 Roosevelt Rd., Chicago 50, Ill.

And the prime bugaboo of all mowers of the past—the bent crankshaft? Here the mower builders have shown great ingenuity. They've shortened the shaft, dispersed the shock, put "give" into the blades and even improved the blades. Eska, for example, has an adapter that holds the blades in place on an extra-large drive shaft so that sudden shocks will not damage the crankshaft. Jacobsen employs a disk with four blade tips on its periphery. Unyielding foreign objects knock the blade tips behind the rim of the disk. [*Continued on page* 138]



YARDSMITH 19-in. and 22-in. rotaries are sold in 5 models from $79.95 to $139.95.

Yuba Power Products, Inc., 800 Evans St., Cincinnati 4, Ohio

CHOREMASTER'S 22-in. power-propelled rotary with fingertip control is $139.95.

Yuba Power Products, Inc., 800 Evans St., Cincinnati 4, Ohio

MINIATURE LAMP burns for about a minute as this simple storage battery discharges.

By Carleton J. Lynde, Ph. D.

Professor Emeritus of Physics, Columbia University

YOU can easily make a small storage battery that will light a 1½-volt lamp, ring a bell or run a toy motor—and you can do it with safe, easy-to-find, inexpensive materials. All that's required is a small amount of sheet lead, a few tacks, a strip of wood, a short length of wire, two dry cells and a tumbler or beaker of water.

Your first step is to cut the sheet lead into two 4x1½-inch strips. Then take a 4x1x½-inch strip of wood and tack the lead strips on opposite sides as shown in one of the photographs. Put one tack in each side first. The second tack on each side is used as a terminal for a nine-inch length of wire, so wrap the end of the wire under the head of the tack before you drive it in. Next dissolve a heaping tablespoonful of baking soda in a tumbler of hot water and lay the wooden strip across the top so that the lead strips are in the solution.

To charge your battery, you must connect the two nine-inch wires for five minutes to two 1½-volt dry cells joined in series. The last photograph shows how the wires are connected to accomplish this. When the five minutes are up, disconnect the wires from the dry cells and connect them to the terminals of a light, bell or toy motor. Your storage battery will operate any of them for about a minute.

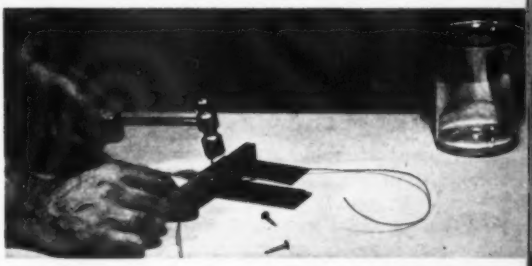
Here is what happens: Originally, each strip of lead has a gray coating of lead oxide (PbO) which is formed naturally from contact with the air. When the strips are connected to the batteries, one is connected to a plus terminal and the other is connected to a negative terminal; thus one is a positive strip and the other is a negative strip. The direct current from the batteries causes oxygen to be deposited on the positive strip and hydrogen to be deposited on the negative strip. The hydrogen combines with the oxygen on the negative strip

You can make and demonstrate a storage battery with safe, inexpensive and easy-to-find materials.

and takes it away, leaving lead (Pb). The oxygen combines with the oxygen on the positive strip and stays, making it lead peroxide (PbO_2). Therefore, one strip is lead and the other is lead peroxide and your storage battery is fully charged.

When you disconnect the wires from the dry cells and connect them to a lamp, bell or motor, your storage battery starts to discharge and the direction of the current, or the flow of the hydrogen and oxygen, is reversed. Then the hydrogen causes the lead peroxide (PbO_2) to change to lead oxide (PbO) and the oxygen changes the lead (Pb) to lead oxide (PbO). Thus both strips are once again lead oxide and your storage battery is fully discharged. You can repeat the process by recharging the storage battery with the dry cells. Naturally, with larger plates, you can draw more current. •

SHEET LEAD is cut into strips. It has a naturally acquired coating of lead oxide.



TACKS secure strips of lead to wood. A wire extends from one tack on each side.

BAKING SODA is dissolved in a beaker of hot water before immersing the lead.

CHARGE the battery by connecting the wires to two dry cells wired in series.

SPRUCE UP YOUR HOME

BATHROOM SHELF

By John Michaels

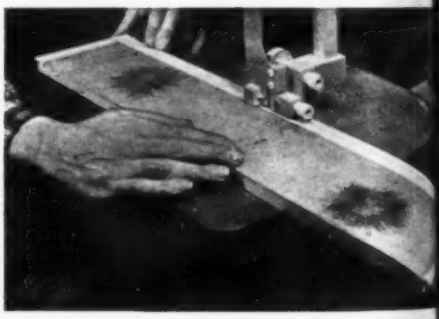
FINISHED SHELF is a handy adjunct to medicine cabi keeps those most-often-used toilet articles at your finger

SOLVE the problem of an overcrowded medicine chest with this simple shelf of ½-inch maple plywood laminated with ⅛-inch Acrolite, a colorful plastic sheeting into which has been pressed natural plant life and elegant fabrics.

Cut wood and plastic slightly oversize, coat joining surfaces with contact cement, then join them and sand the edges smooth. The shelf is attached to the backboard with flathead wood screws. Finish the job with three coats of clear lacquer brushed on the edge of the wood. •

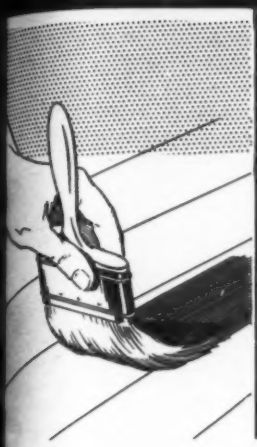
APPLY contact cement to both plastic and wood to assure a permanent laminating job.

BRACKETS fasten to threaded lead anchors recessed into predrilled holes in the wall.



OVERSIZE shelf is cut to proper size on bandsaw by following pencilled line on tape.

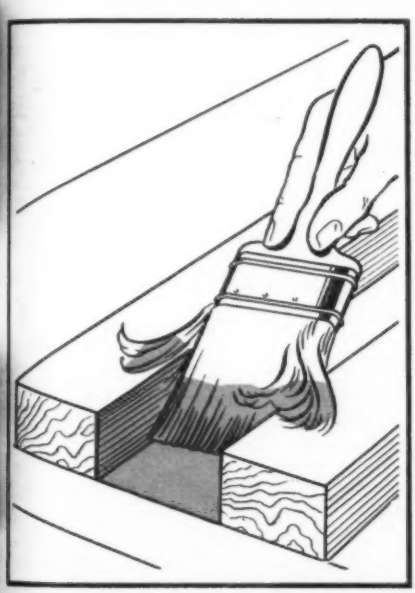
FRESH PAINT TIPS



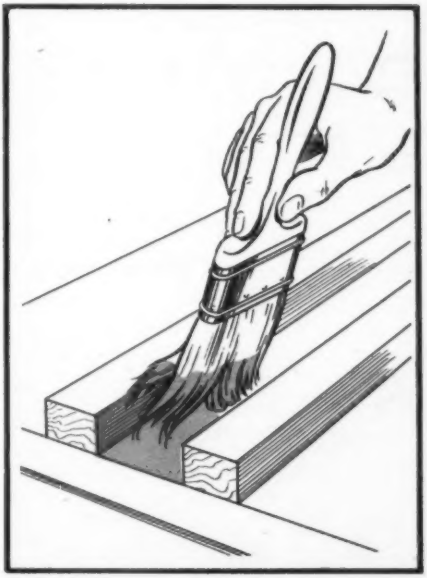
"SAMPSONS" ruin brushes by bearing down too hard, but pros use only the lower half of the bristles.

EXCESS PAINT is removed by drawing brush over wire fixed across can as shown; lips of can may cut bristles.

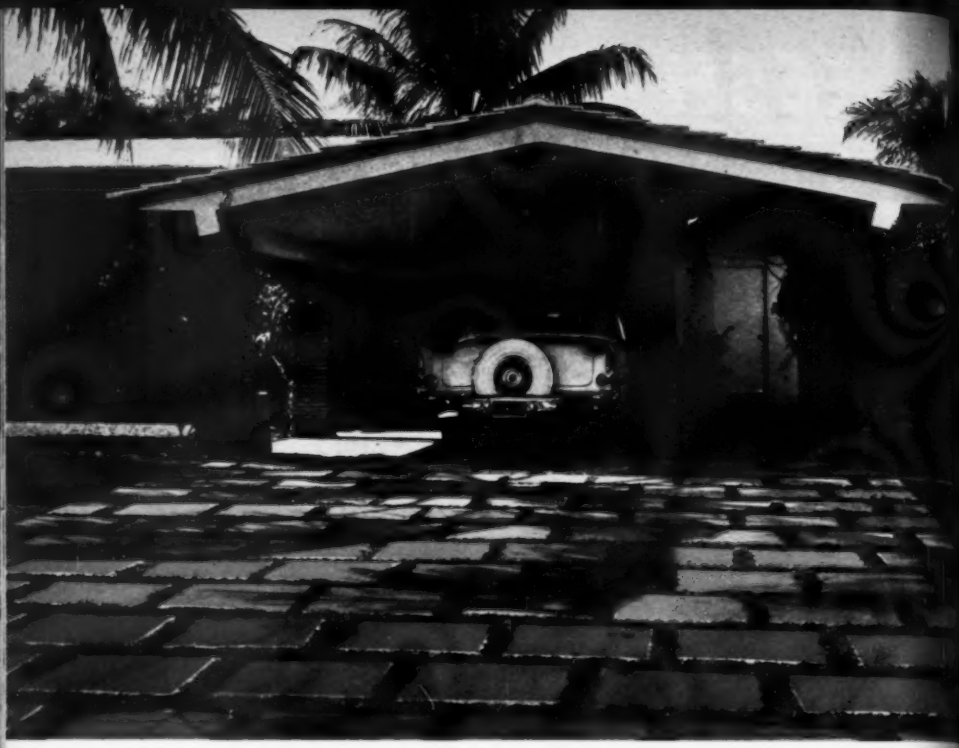
PIPE-STRADDLING kills brushes. Paint crosswise on round work or else use a roundhead brush on it.



DON'T FORCE a paint brush into corners, narrow openings or other recessed areas. Abuse of this sort will cause the bristles to curl and break away from the ferrule.



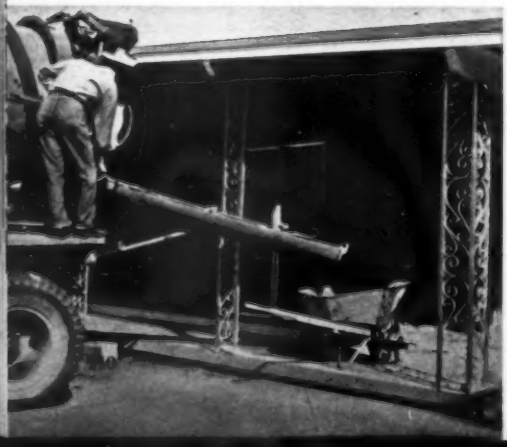
OVERSIZE BRUSHES "finger" and become useless if used edgewise to paint narrow surfaces and recesses. The first rule of painting is: the right brush for each job.



CONCRETE IN COLOR

Use colored concrete with taste and restraint and it will enhance the beauty of your home as well as improve the value of your property.

By David X. Manners



COLORING concrete for terraces, driveways or patios is a reasonably simple operation. Color can be added either at the time of mixing or after the concrete has been poured. By careful blending of two or more pigments, you can achieve almost any shade you want.

Some pigments are natural, others are manufactured. If given a choice, take manufactured (synthetic) rather than

READY-MIX suppliers are equipped to pre-color, deliver and pour concrete for you.

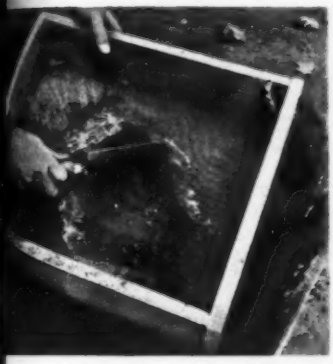
natural pigments—they're more durable.

Pre-colored concrete can be bought from ready-mix suppliers, but this is quite expensive. One of the easiest ways of adding color is to dust it onto freshly placed concrete and work it into the surface with a wood float.

You can also buy prepared and bagged mixes of pigment, cement, and aggregate in standard colors. Only half a pound of one such mix, Colocron, is required to color a square foot. Dust on the mixture and then work it into the concrete with a wood float, stopping when the surface becomes wet. When surface moisture disappears, finish as for any other concrete job.

Stain is recommended for coloring existing concrete floors. Those that have been previously painted must be scrubbed [*Continued on page* 140]

CONTRASTING COLOR AREAS should be blocked out with a masonry grooving tool.

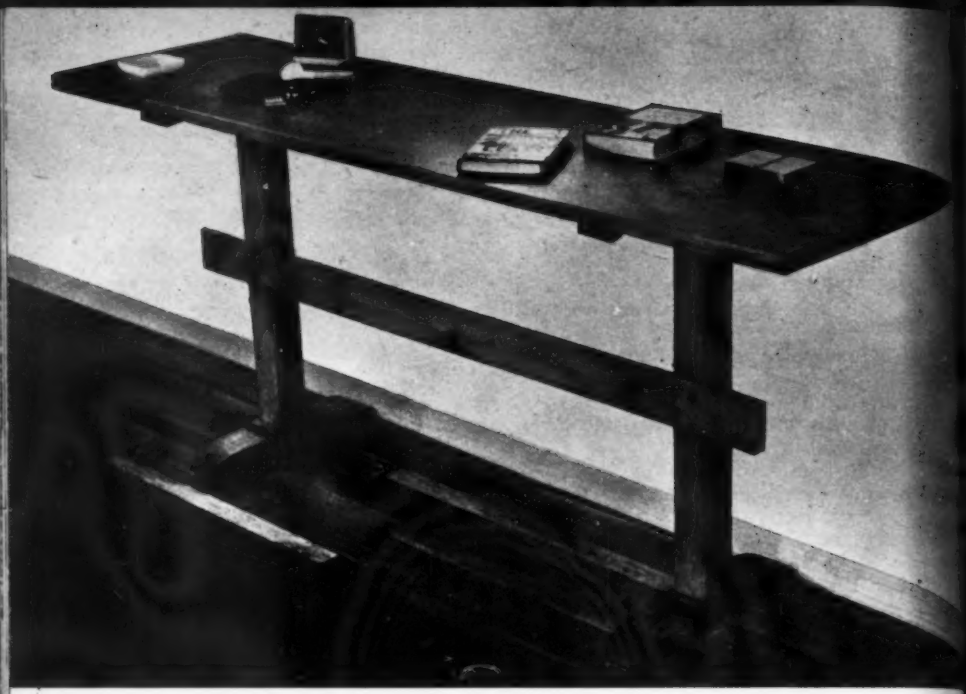


DUST-ON compound of cement and pigment is forced through a wire screen to mix; then sand is added.

COLORED MIX is spread on fresh concrete in one direction; then second dusting is carefully applied at right angles to first.

WOOD FLOAT is used to work the dust-on coloring into the concrete.

BEFORE STAINING concrete floors, scrub them with a trisodium phosphate solution.



TRESTLE TABLE

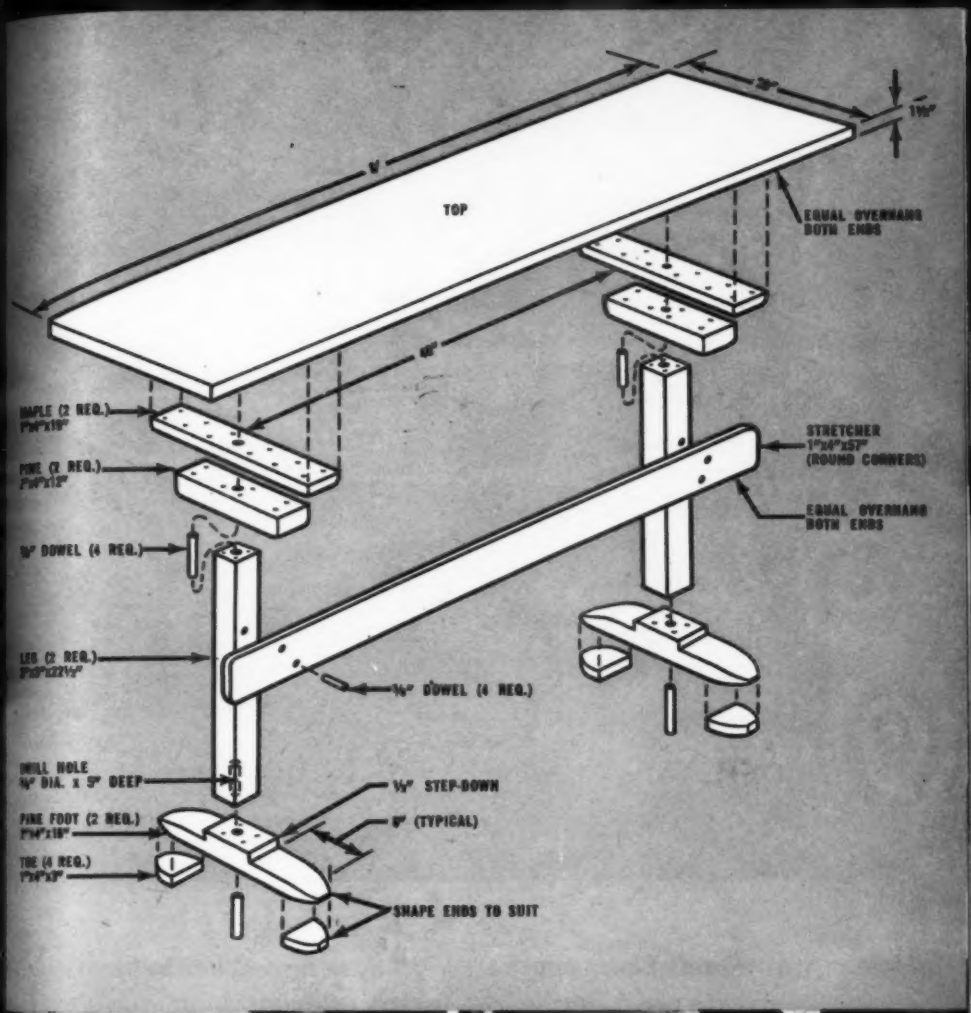
IF the world's oldest something-or-other intrigues you, this is a project you'll want to tackle. It's based on the world's oldest regular dining table. Before the trestle, gourmets had to settle for a board on a frame.

A great thing about this table is its adaptability. Lengthen the feet and you can widen the top. Add legs and you can extend it indefinitely. Or consider the results with fine woods, an apron beneath the [*Continued on page* 144]

SMOOTHING down the foot and toe assemblies with fine paper.

CROSSPIECE is fastened temporarily for alignment.

BORING through the maple and pine crosspieces.



TAKE CARE to align dowel holes properly before proceeding with final assembly.

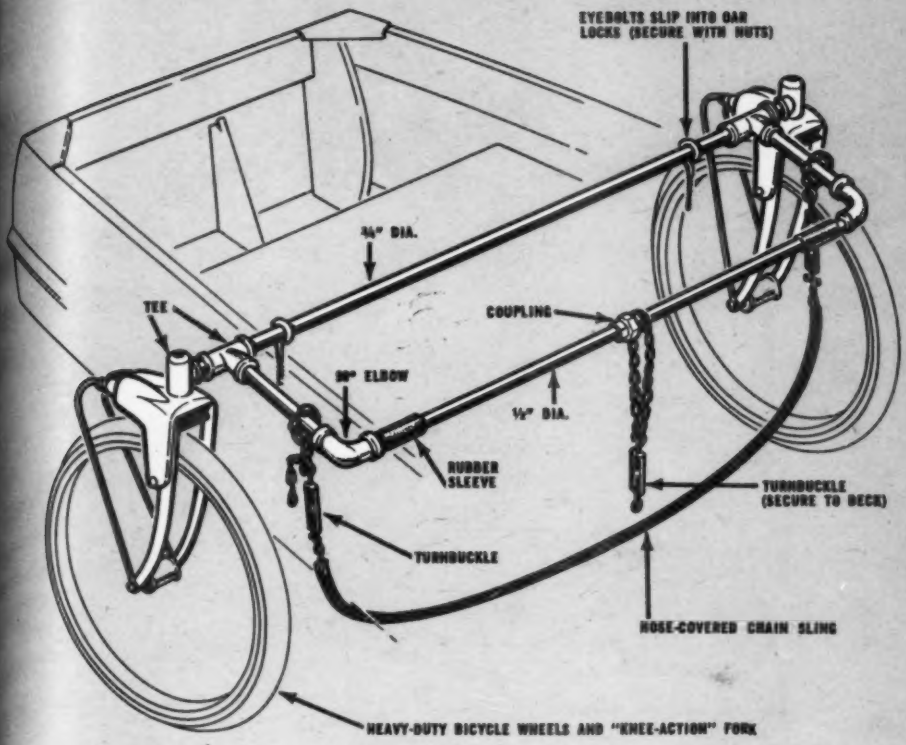
MOUNT FEET last: then bore through for hardwood dowels which add strength.

Small boats can be wheeled or towed behind a car with this simple rig which attaches in a minute.

By Arthur H. Nellen, Jr.

WANT to make a lightweight boat mobile without buying an expensive trailer? The Portaboat attaches in 60 seconds and you can trail the boat behind a car or wheel it for short distances by hand. The one illustrated was built for an 85-pound, 12-foot boat but should be satisfactory for boats up to 125 pounds. For heavier boats, forks of greater capacity should be used—preferably those from motorbikes.

Making the Portaboat is easy. If you have a welding outfit, you can do the entire job yourself; otherwise, a local shop will do the necessary welding for a few dollars. The rectangular pipe frame should be about four inches wider than the distance between the oarlocks and the short sides should be about 12 inches long. The forks are from 26-inch bikes and are fitted with heavy-duty wheels and tires. After removing the handlebars, reduction tees are slipped over the stems of the forks and welded in place. These then serve to couple the pipe frame to the forks. Reduction tees are also welded to the main pipe of the frame but the [*Continued on page* 173]



TEE is welded to the stem of the fork to accept the end of ¾-inch pipe crosspiece.

HOSE-COVERED chain sling is attached to frame, passes under boat for support.

COMPLETED AIR COMPRESSOR mounts the motor and compressor unit on 35-gallon tank.

AIR COMPRESSOR

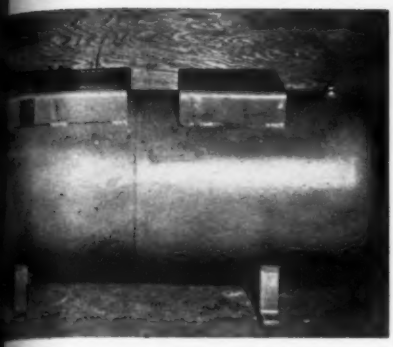
How to make an air compressor using parts from a mechanical refrigerator.

By Richard Hanson

HAVE you ever thought, "Gee it's a shame to throw away this old refrigerator. There must be some way it can be made into an air compressor." There is.

Your first step will be to get hold of a good used air tank. These can usually be obtained from used-machinery dealers for $2 to $10. The tank pictured above has a 35-gallon capacity.

If you haven't a refrigerator to discard, visit a commercial refrigerator shop to pick up a used compressor at a cut-rate price. Check the compressor

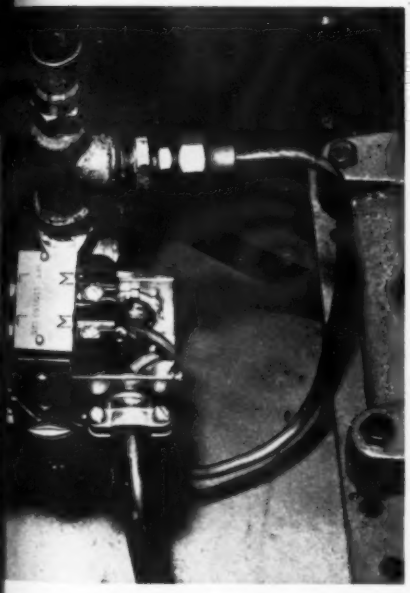


EEL PLATFORMS welded to top of air k support the motor and air compressor.

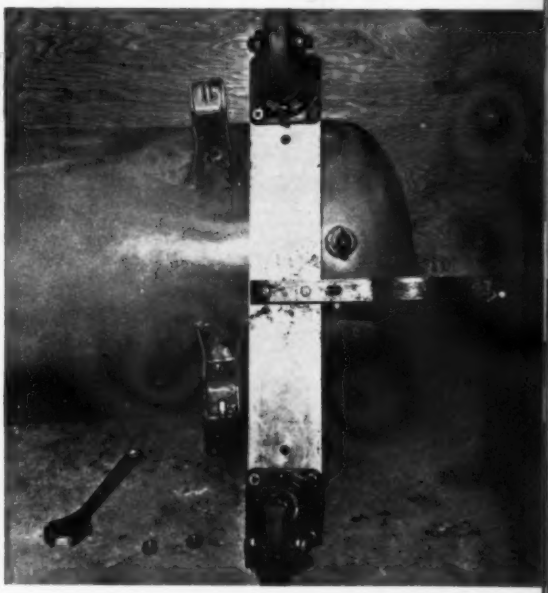
THOROUGHLY CLEAN valves and head of compressor; if worn, replace the valves.

refully and flush the crankcase with el oil or a good detergent. Clean the ad valves. If the valves are worn, re- ace them with new ones. A compres- r usually has an oil filler plug on its de; if not, drill and tap it to take a ⅛- ch plug. Add enough No. 20 nonde- rgent oil to the crankcase to splash-lubricate when the unit is operating.

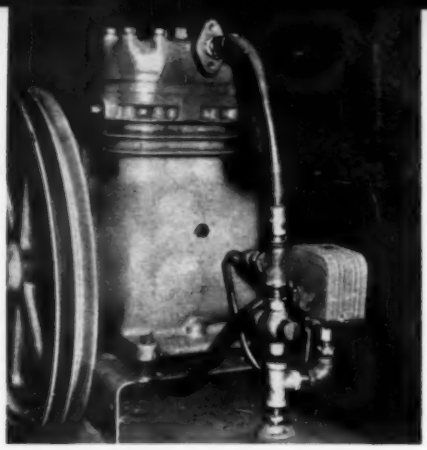
You can make an air filter from an oil can by punching holes through the can, then filling it with lightly oiled filter material taken from an automobile air cleaner. The can is then soldered to a nipple long enough for the filter to clear the compressor.



PRESSURE SWITCH is adjustable to 200 lbs. psi. Unloader pipe is shown at right.



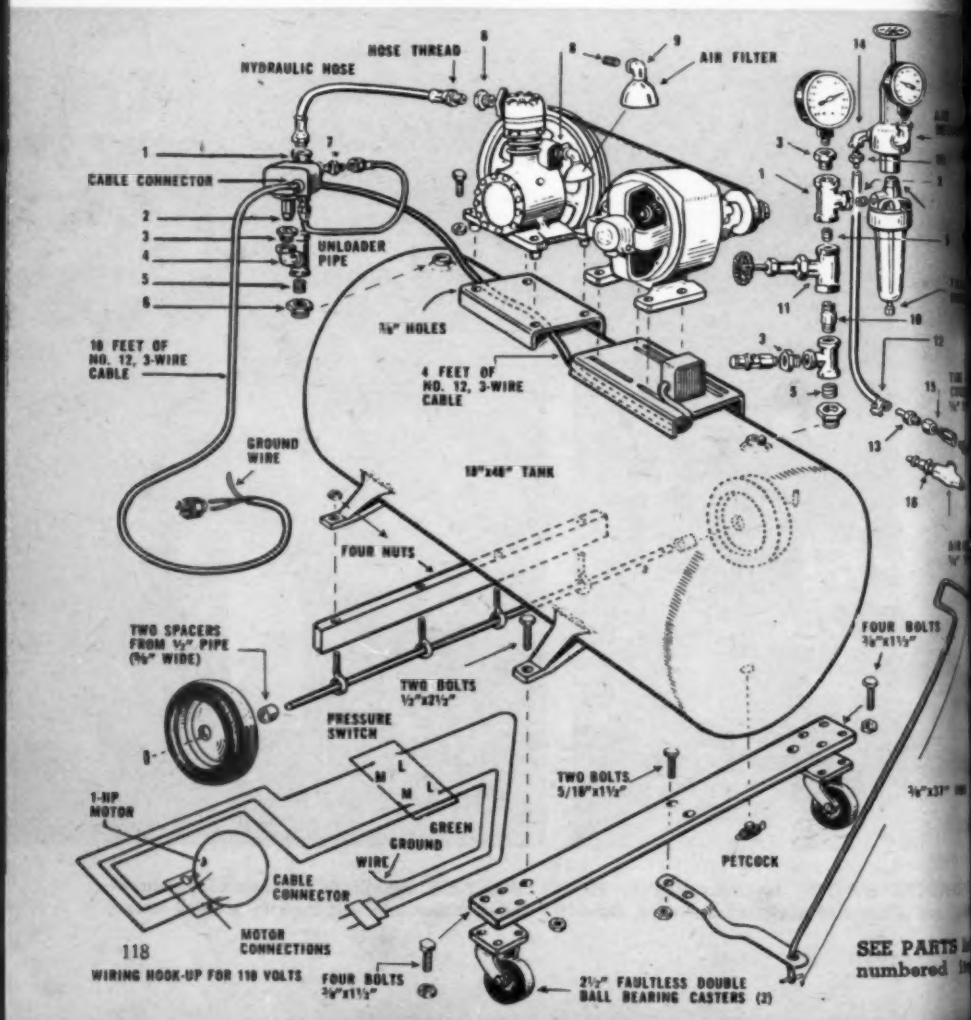
FRONT-END ASSEMBLY shows how casters and tow bar are attached to legs of tank.



PRESSURE SWITCH lets compressor restart easily by releasing air when motor stops.

Wheels and casters. Fit a piece grooved hardwood to the rear legs the tank to hold the axle in place means of eyebolts. Bolts near the en each leg hold the axle to the tank. five-inch wagon wheels on this re axle. The front casters are bolted to piece of heavy, flat iron which is th bolted to the front legs of the tank. T tongue for the rig is fashioned from length of ⅛-inch steel and bolted to front bar. The towing handle is of 37-inch steel rod.

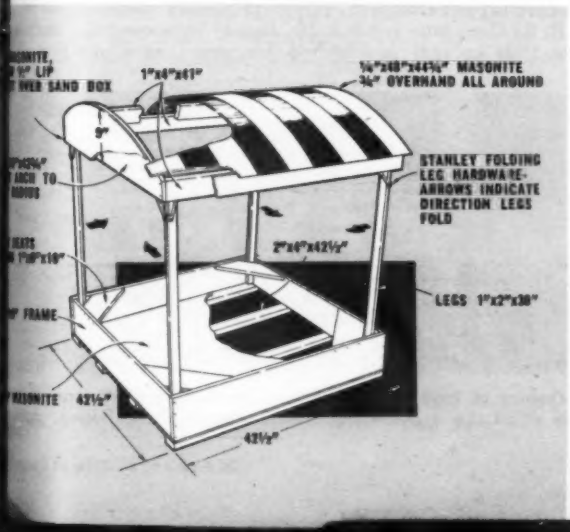
The compressor is now placed on steel platform atop the tank. Be sure the flywheel clears the tank; if doesn't, raise [*Continued on page 13*



WIRING HOOK-UP FOR 110 VOLTS

UNIQUE TOP shades Junior from sun, can be lowered over box to keep sand dry in rain.

SAND BOX



THIS new design in sand box construction incorporates a double-purpose top. When the sun is shining, Junior is shaded; when it rains, Mom or Dad can fold the legs under and lower the top to keep the sand dry.

The Masonite top is easily bent if it is wet thoroughly on the screen side and kept moist for 24 hours before its application. Screws should be used to secure the Masonite to the frame. •

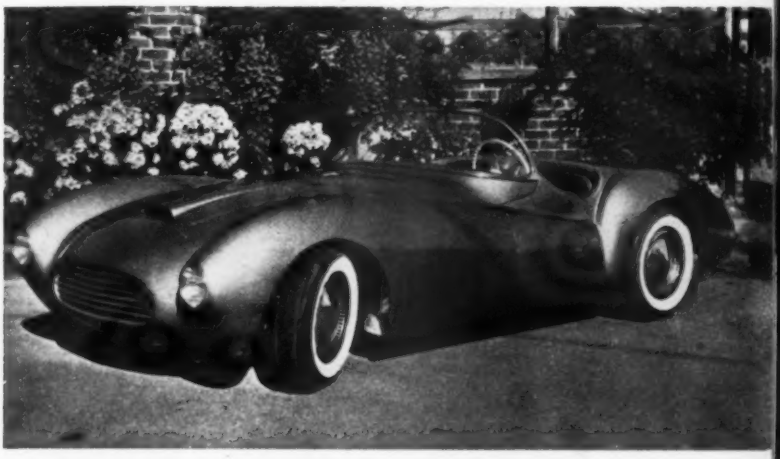
Golden Hammer Award Winners

GRANDFATHER CLOCK is mahogany-paneled with gumwood Roman numerals. It was built by R. B. Gandy, St. John, N. B., Can., who is blind. Mr. Gandy uses specially devised stops and guides on his power tools as aids in building his many excellent projects.

PANORAMIC VIEW of the workshop of Fred Nies, Hamburg, Iowa, shows all four walls. Against the shop's walls (left to right) are a soldering bench, woodworking bench, paint

Each craftsman whose project is shown receives a 24-karat gold-plated Hammer and a Workbench Award Certificate. Runners-up will be sent a beautiful gold-plated Golden Hammer Tie Bar or MI's Certificate of Merit. So send us some *black-and-white photos, with negatives,* and a full description of your latest project. Photos of your workshop are also eligible. Send all entries, with return postage, to MECHANIX ILLUSTRATED Golden Hammer Awards, 67 West 44th St., New York 36, N. Y. Entrants are advised that MECHANIX ILLUSTRATED cannot accept responsibility for customs charges, duties, taxes, etc., levied against Golden Hammer and Golden Hammer Tie Bar winners outside the United States.

The following craftsmen have been awarded GOLDEN HAMMER TIE BARS for their projects: Louis A. Cassella, Orange, Conn.; Jesse J. Wheelock, Walsenburg, Col.; Al H. Hambleton, Afton, N. Y.; Stanley L. Courtney, Camp Hill, Pa.; Albert DeLaura, Detroit, Mich.; Franklin J. Cortese, Houston, Pa.; Edwin Minatra, Columbia, Tenn.; Howard Hargrove, Lawrence, Kan.; A/2c Norman Kulig, Ellsworth, S. D.; Michael Shukites, Johnston City, Ill.; R. E. Payne, Minneapolis, Minn.; Lucien Rivet, Alberta, Can.; Robert A. Fricke, South Milwaukee, Wis.; Donald R. Clinger, Kennewick, Wash.; G. De Ceulaer, Antwerp, Belgium; M. Beeckens, Antwerp, Belgium; Donald H. Dippel, Millbrae, Calif.; M. Garciagodoy, Ciudad Juarez, Mex.; Walter Baran, Moose Jaw, Can.; Stephen J. Palko, Fond Du Lac, Wis.; David A. Ray, Akron, Ohio; John A. Morgan, [Continued on page 158]

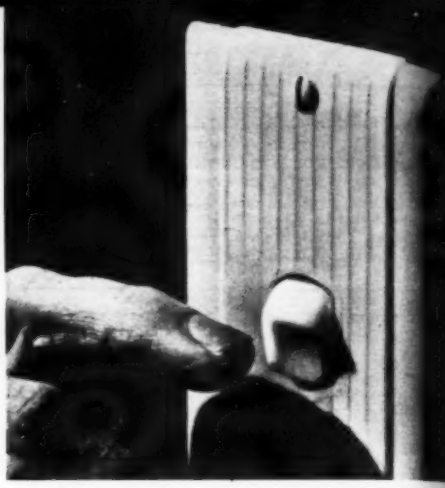


BREAKFRONT of lacquer-finished walnut is over six feet high. It was crafted by Bob Handloser of Burbank, Calif., for $75.

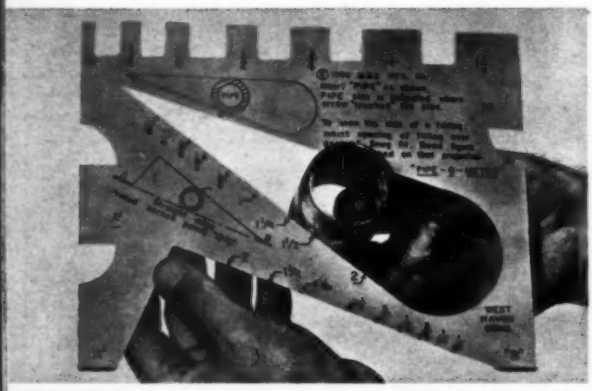
SPORTS CAR took John Manion, also of Burbank, five years to build. Built on a Ford chassis, it has a Studebaker engine.

ing bench and tinkering bench. Mr. Nies has collected his tools over a period of 35 years. He uses his shop for general repair jobs and for his cabinet-making projects.

MI's HARDWARE STORE



ROCK-IT WALL SWITCH glows in the dark. It's activated silently by the mere flick of a finger.
Pass & Seymour, Syracuse, N. Y.



PIPE-O-METER measures the size of all pipe, whether flush against wall or free standing.
M & E Mfg. Co., P. O. Box 53, 72 Elm St., W. Haven, Conn.

PERMA-HANG-IT RACKS are 4-ft. aluminum tracks with movable pegs. $2.95.
Reese Tool & Die Co., 1118 Meadowbrook, Youngstown, O.

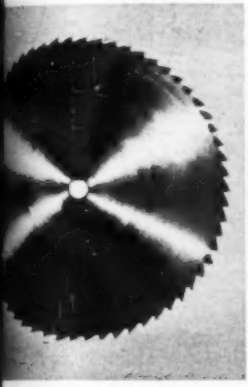
G-C TIPON TOUCH-UP STICKS cover scars on wood and appliances, come in six colors.
G-C Electronics Mfg. Co., 400 S. Wyman St., Rockford, Ill.

SCREW-DRIVER SET has a ratchet fitting for extra leverage, three drivers.
Cuyahoga Prod. Corp., 10257 Berea Rd., Cleveland, O.

FENDER SAVERS on garage spare car's finish.
Johnson Prod. Corp., 9972 Springfield Pike, Cincinnati 15, O.

NEW low-price masonry fill insulation is water-repellent.
Zonolite Co., 136 S. LaSalle St., Chicago

3-IN-1 tool spikes, seeds, rolls bare spots on lawn.
Bare-Spotter Seed Preparer Co., 97-34 146 St., Jamaica 35, N. Y.



SAW with hardened tips stays sharp longer.
Inc & Co., Inc., 910 E. 138 St., New York 54, N. Y.

TROUBLE LIGHT of tough plastic has switch guard.
M. Black Mfg. Co., 300 N. 3rd St., Philadelphia 6, Pa.

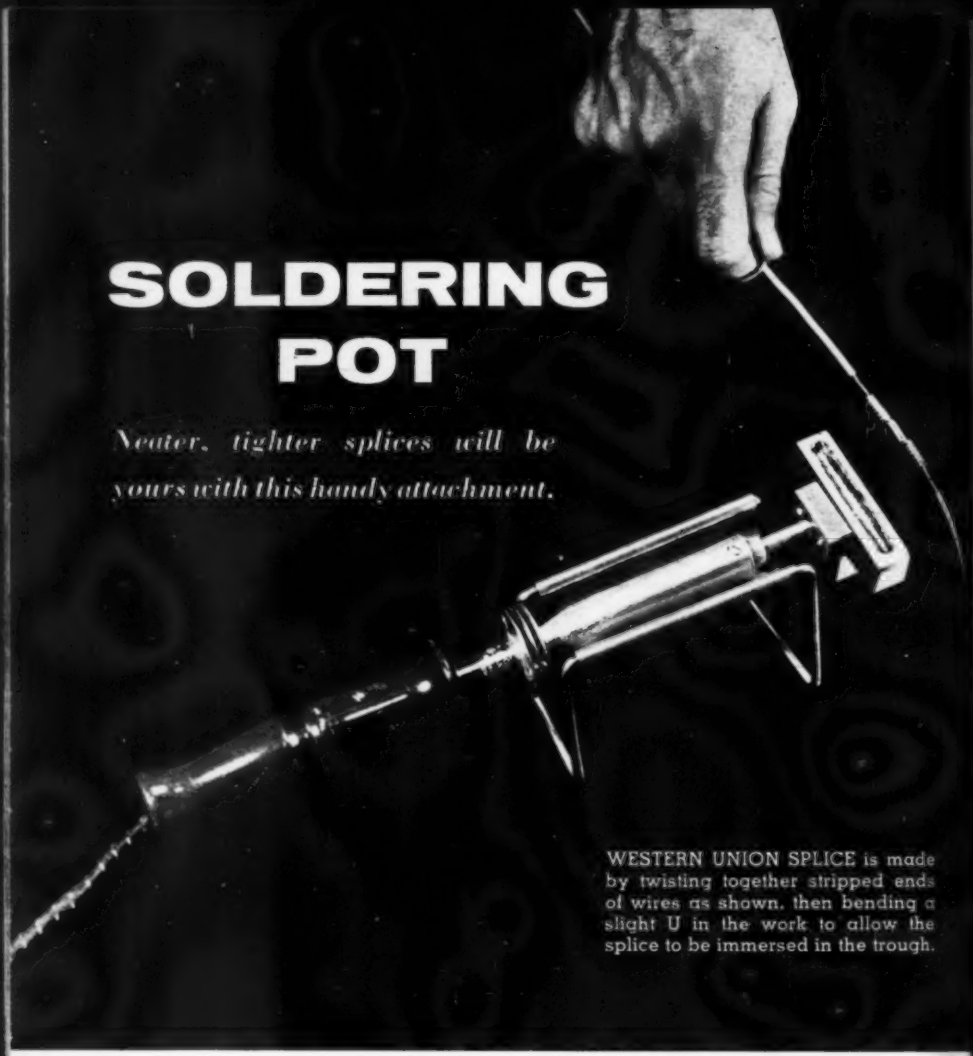
A draftsman's pen with a cartridge-loading ink supply is available from Clover House, Box 1107, Santa Monica, Calif. . . . Chamie-Tex is a synthetic chamois cloth. An 18x21-inch square costs $1.29; Milwaukee Dustless Brush Co., 530 N. 22nd St., Milwaukee 3 . . . Fix-a-crak, a patching plaster in tubes is made by Embree Mfg. Co., Elizabeth 4, N. J. . . . A stain remover for asphalt tile, vinyl and linoleum is made by Quickee Products of Yonkers, N. Y. . . . A liquid chemical for cleaning grease stains from concrete is sold by BanZoil Co. of 5815 Sheridan Road, Chicago 40 . . . Caulking compounds in 26 colors packed in roll-up tubes are available from Calbar Paint and Varnish Co., 2612 Martha St., Philadelphia 25.

LIFE-LITE flashlight uses rechargeable batteries, plugs into your AC line for recharging.
Walton Co., 128 E. Broadway, Box 163, N.Y.C. 2

FOLDING SUPPORT for can opener fits under shelf, isn't seen when not in use.
Wako Prod., 734 W. Clinton St., Napoleon, O.

SOLDERING POT

Neater, tighter splices will be yours with this handy attachment.



WESTERN UNION SPLICE is made by twisting together stripped ends of wires as shown, then bending a slight U in the work to allow the splice to be immersed in the trough.

By R. J. Capotosto

THOSE of you who do a considerable amount of your own electrical work around the house will especially appreciate this novel soldering pot attachment for your soldering iron. With it you will be able to make soldered pigtail or Western Union splices with a perfection you never thought possible.

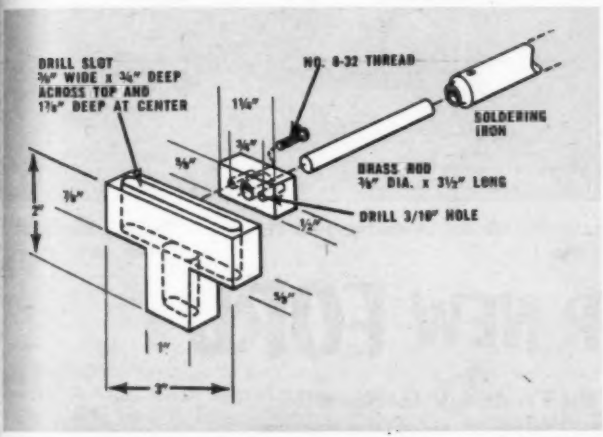
The pot is made of brass and will work on any standard 100- to 125-watt iron having a replaceable tip. These irons usually have a ⅜-inch tip which is held in the heating chamber with a setscrew. To attach the pot, simply loosen the iron's setscrew, remove the regular soldering tip and insert the pot.

Shaped like the letter T, the pot's vertical leg is drilled to accept pigtail splices; the horizontal trough is used for Western Union splices.

To make the unit, drill a series of ⅜-inch holes ¾-inch deep into a bar of ⅝x2x3-inch brass. Now replace the drill bit with a rotary file and break through

ROTARY FILE fits in drill press chuck, breaks through drilled holes to form slot.

BOTTOMING TAP must be used to thread shallow holes in side of the soldering pot.



the holes to form a slot. Keep sliding the work back and forth so that the action of the file will make the slot smooth and straight. Two 3/8-inch holes are then drilled in the face of the stock and a hack saw cut made to drop the corners to form the T.

Drill and tap two holes for the [*Continued on page* 146]

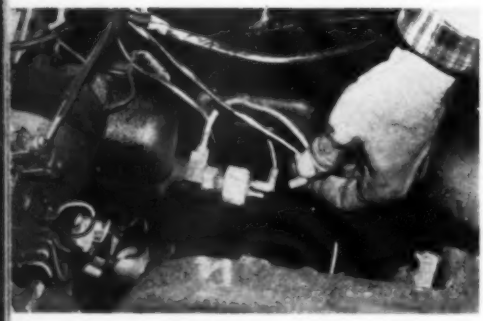
HEAT-CONDUCTING STOCK is fastened to soldering pot with roundhead brass bolts.

INSERT BRASS ROD as far as possible into the iron before tightening setscrew.

NEW FORD OWNER will learn about his car by studying his 1959 Ford Car Shop Manual.*

YOUR NEW FORD

By Frederick C. Russell
Member, Society of Automotive Engineers

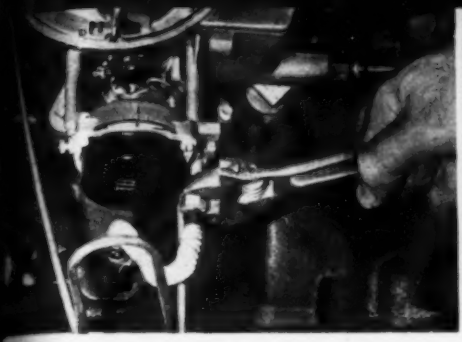


TAIL LIGHTS that don't function may be traceable to detached bullet connectors.

FROM Tin Lizzie to Thunderbird in slightly over three decades is quite a leap. So it stands to reason that anyone who buys one of Ford's 1959 jobs is missing a good bet if he does not follow up his purchase with the best in service.

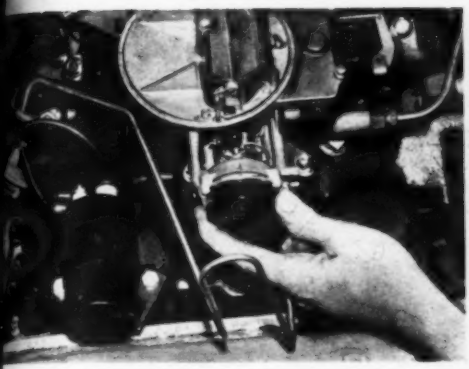
This year the company's engineers have done a number of things to make their cars easier to maintain. They've added a dye to the automatic transmission fluid so that leakage won't be confused with oil from the engine. The new Ford engines carry a production thermostat with a 175° to 180° range so that it is not necessary to change stats for winter and summer unless alcohol anti-

*Available from Helm, Inc., Ford Publications Dept., 3000 East Jefferson Ave., Detroit 7, Mich. $3.50.

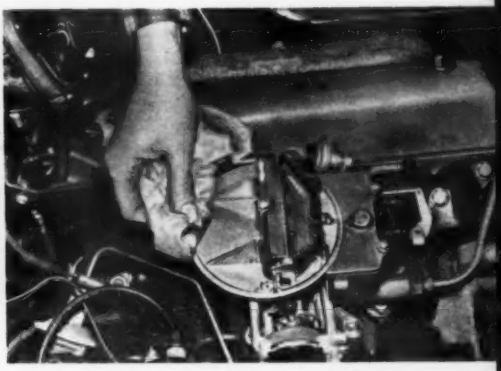


TIGHTEN the warm-air intake couplings to insure efficient operation of carburetor.

IN WARM WEATHER disconnect hot-water line by closing the petcock at the engine.



TURN thermostatic spring housing right for a lean mixture, left for a richer one.



SAFEGUARD carburetor repairs by wiping dirt and grime from all the working parts.

freeze is used in cold weather. And this year's Fordomatic transmission has 105 fewer parts because it has only two forward speeds. That means fewer repairs when age sets in, even though this arrangement can be less economical on gas for a driver who allows his car to run too much in low gear.

And here are some more features on the current Fords which make for easier servicing. Owners will like the wiring plug which disconnects on the engine side of the firewall and which eliminates the need for stringing wires through the wall. The neutral switch used with the automatic transmission is mounted on the steering box where it's easy to reach. Getting at the manual linkage for the automatics is also a simple job. Fewer muffler replacements should be required now that the new Fords carry aluminized mufflers which are said to last twice as long as previous type mufflers.

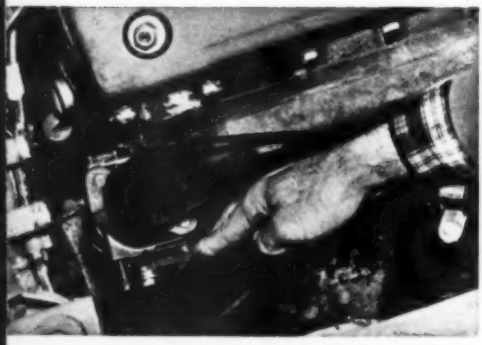
The new-type enamel now used on the body finish is said to require no waxing for the life of the car; however, if a car is to be used in a hot, humid climate, some waxing would be desirable. Waxing *is* necessary for the preservation of the chrome trim.

The new Ford nonslip (limited slip) differential—named Equa-lock—is not adjustable and, like those used on other makes of cars, requires a special lubricant.

It would have been easier for all concerned if Ford had elected to refer to their several engines as A, B, C or D —or even Ann, Bess, Cynthia and Dora as the weathermen endearingly refer to hurricanes. As matters stand the Ford buyer is faced with the business of being asked whether he wants the Mileage Maker Six with the 223-cubic-inch-

ALWAYS disconnect heater hose at the water pump when refilling cooling system.

CLEAN your Ford's dry-type air cleaner every 5,000 miles, replace at 10,000 miles.



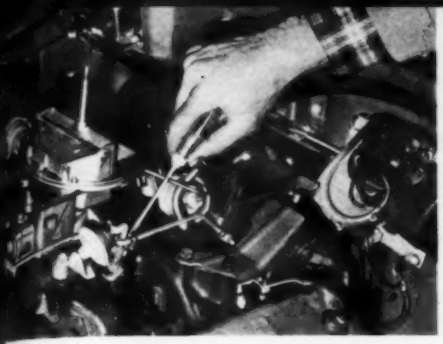
BE SURE spring of manifold heat control valve is properly hooked on its stop pin.

displacement motor, the V8 292-cubic-inch standard engine, the V8 332-cubic-inch optional engine or the 352-cubic-inch engine which is the power option for all V8 models. This last-named engine is standard for Thunderbirds and Galaxies and there's also a 430-cubic-inch V8 as a power optional for the T-bird. In the order given these engines have horsepower ratings of 145, 200, 225, 300 and 350. Because of a slight drop in compression ratio the horsepower of the 292-cubic-inch engine has been lowered a little. In the 332-cubic-inch job the hp drop is 40. That's why you'd be smart to select the 352-cubic-inch engine where power steering, air ride and air conditioning are specified.

Ford buyers will want to think seriously about specifying the Cruise-O-Matic transmission which is continued over from last year. It's a three-forward-speed dual-range job. Also keep in mind that the Fordomatics come in four models which team with the Six and the three engine sizes in the V8 line (not all the parts are interchangeable). There also are two converters: one for the Six and the small V8, the other for the larger engines; these can't be taken apart for servicing. Fordomatics take ten quarts of oil except for the larger engines which call for 10½ quarts. The manual-shift transmissions require only three pints of lubricant. If overdrive is added, four pints will be required for the 352 and the 430 engines.

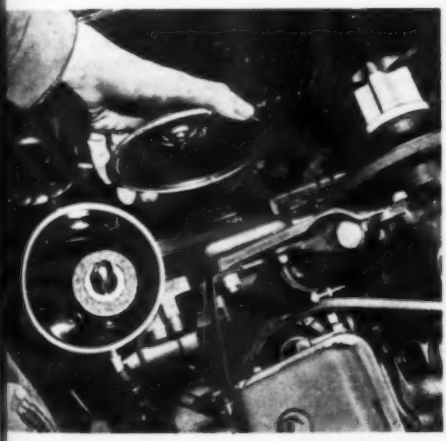
Check the oil level in the Fordomatic transmission every 1,000 miles with the engine idling and warmed up. Move the selector lever through all positions and then place in Park. Clean all dirt from around the transmission's dipstick and don't overfill. Ford says to drain and refill Fordomatics every 24,000 miles, but experience has shown that where a car is used excessively in 'round-the-town driving the automatic transmission takes quite a beating. This can be offset to some extent by more frequent oil changes.

As regards the engine, this year Ford joins Chevrolet in recommending engine oil changes only every 4,000 miles. This has been [*Continued on page* 136]



HARD SHIFTING may be due to nothing more serious than a too-fast idling speed.

IDLE ENGINE when checking Fordomatic oil level—and check it every 1,000 miles.



RENEW the filter element of your Ford's power steering reservoir every 20,000 miles.

SERVICE TIPS

from Detroit

Changes in the Torqueflite transmission used with the Plymouth Commando 361-cubic-inch engine may make the first-to-second shift too sharp unless the throttle linkage and pressure adjustments are corrected.

If the light bulbs of the front parking and directional signal light housings of your 1958 or '59 Rambler corrode in their sockets, it is due to moisture entering the housings. Remedy this by re-routing the leadin wires at the rear of the assemblies so as to loop downward to provide an entry upward into the socket assembly. Gravity is thus used to help prevent moisture from entering.

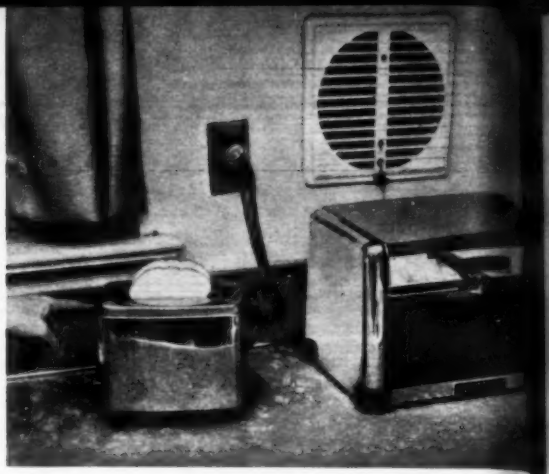
Trouble in restarting a hot 1958 Ford engine (equipped with Ford carburetor) can be checked by reworking the carburetor so that the acceleration pump bowl is vented to the float bowl. Your Ford dealer can make the necessary alteration.

Power brake pedal height on the 1959 Chevrolet is adjusted by rotating the clevis on the pedal end of the push rod. Minimum pedal height (measured from the top of the floor mat to the top of the pedal pad) should be 4⅞ inches on Biscayne and Bel Air models and 4⅝ inches on the Impala.

If engine vibration occurs with the 59S Lark cars equipped with Flightomatic transmission, Studebaker recommends installing engine mounts of 40 durometer material at the front. They carry parts No. 1548274.

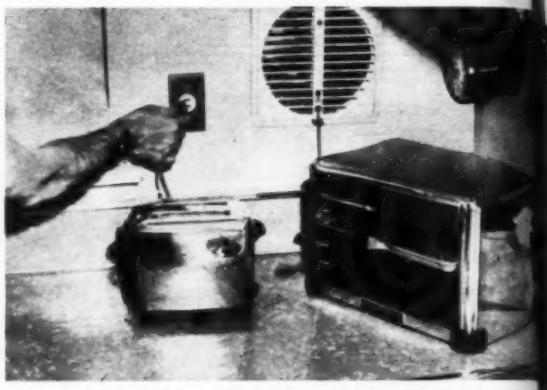
On cars built since November 15, 1958 the dipstick has been omitted from the filler cap on all Plymouth power steering pumps. To take a look at the oil level, simply remove the filler cap. The oil level should be at the bottom of the filler neck if the engine is cold; halfway up in the filler neck if the engine is hot.

HOME HINTS



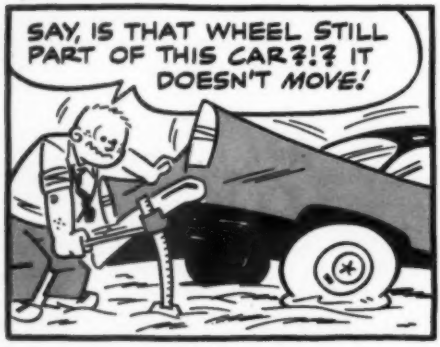
FUSE is sure to blow if two appliances are plugge into duplex outlet on same circuit. Sure cure belo

REINFORCE pages filed in a loose-leaf book with tape before punching ring holes.



REPLACE THE DUPLEX with a single outlet. This way you must remove the cord of the toaster before plugging in broiler. Remove fuse before re-wiring.

FREDDIE FUMBLES

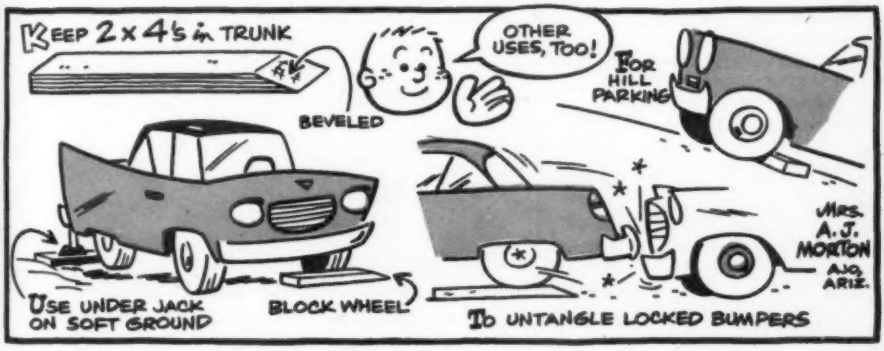


ATTACH stiff wire to glue bottle to pierce glue which hardens at the tip.

SIX-BOTTLE soda carton is a fine carryall for food jars, etc., when you go on a picnic.

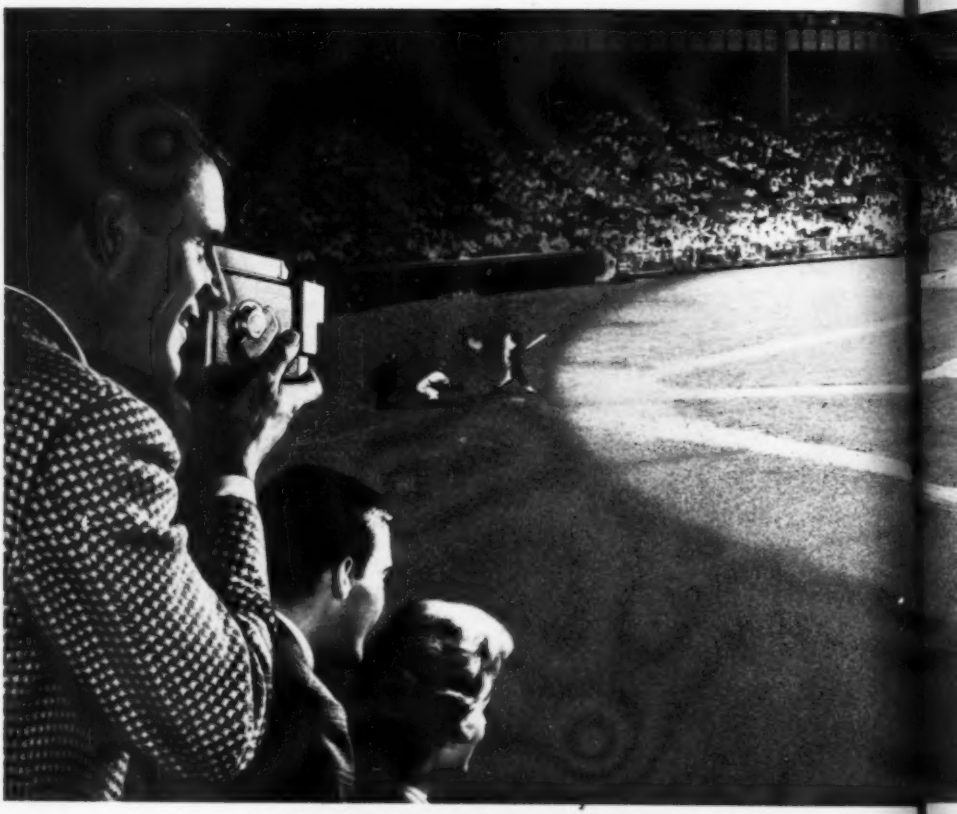
COFFEE CAN cover and greased fill cap keep rain water from seeping into oil storage tank.

Send Freddie Fumbles your idea of a good short-cut, time-saver or safety device in your work, whether it be in the home, shop, office or farm. Each tip accepted will be paid for at the rate of $10. Naturally we cannot acknowledge or return the ones we cannot use. However all will be carefully read and evaluated. (Those which we can use in other departments of MI will be paid for at our regular rates.) Please send in your ideas on a postcard only. Address to Freddie Fumbles, *Mechanix Illustrated*, 67 W. 44th St., New York 36, N. Y.

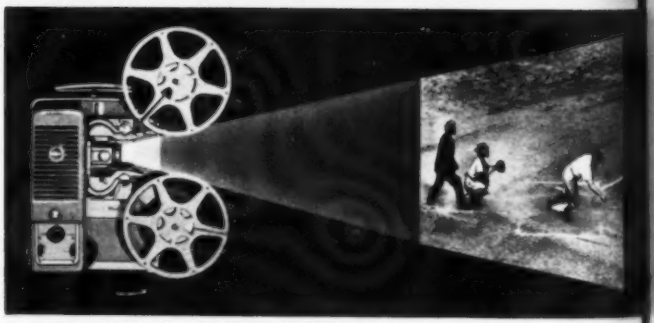


NEW FROM KODAK—

Beautiful movies automatically-fr



New automatic Kodak Cine Showtime Projector, Model A20, threads itself right onto the take-up reel—and starts show automatically! Has fast *f*/1.6 lens and new high-lumen lamp for brightest 8mm projection *in Kodak history.* 400-foot reel capacity. Only $137.50. Model A30 has variable-speed control, operates on AC or DC. Comes with Kodak Presstape Movie Splicer. $167.50.



See "The Ed Sullivan Show" and "The Adventures of Ozzie and Harriet"

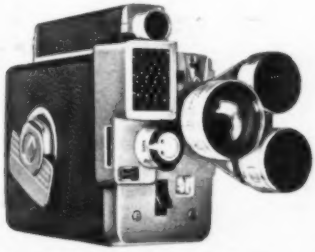
ally-from start to finish!

New Kodak Cine electric-eye-controlled cameras give you correctly exposed movies every time. New Kodak Cine projectors actually thread themselves . . . right onto the reel!

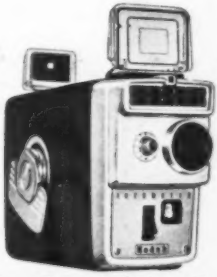
Now you're free to follow the action wherever it leads . . . without stopping to reset the camera lens! Imagine being able to film a subject moving from sunlight to shadow without taking your eye from the viewfinder—confident that every frame of color film will turn out beautifully exposed.

These new Kodak Cine cameras let you do just that. In bright light . . . in shade . . . indoors, their sensitive electric-eye meters constantly measure the light and *automatically* make the proper lens adjustments for you.

Perfect companions to the new Kodak Cine Automatic Cameras are the superb new automatic Kodak Cine Showtime Projectors. They thread themselves completely, then start the show . . . *automatically!* You see your movies brighter than ever before. This is movie equipment your photo dealer is *proud* to demonstrate! Visit him today.



New 8mm Kodak Cine Automatic Turret Camera, f/1.9, has electric eye that automatically adjusts lens to any light. Yet, you can lock the lens opening at *any desired setting*. Comes lens-equipped for regular, wide-angle, telephoto shots. True telescopic viewfinder, built-in "Type A" filter, low-light-level signal. $124.50. (Single-lens model, $92.50.)



New 8mm Brownie Automatic Movie Camera, f/2.3, with electric eye that automatically sets the lens for you—indoors or out. Adjusts for ASA film indexes 5 to 40. Has multi-frame finder, accepts auxiliary Kodak wide-angle and telephoto lens converters. Never before an automatic movie camera priced so low. Only $74.50.

Most dealers offer terms as low as 10% down. Prices are list, include Federal Tax, are subject to change without notice.

EASTMAN KODAK COMPANY
Rochester 4, N.Y.

Kodak

INTERLOCKING FORMS make four one-foot blocks two inches thick. Grease wood that contacts cement.

PATIO BLOCKS

Make your own cinder blocks by using the ashes from a coal-burning furnace.

MIXED with a little sand, cement and water, those cinders you collect from your coal-burning furnace will provide the basic ingredient for durable, colorful patio bricks and terrace blocks.

Once you have the ingredients ready, all you need is the wood forms. These can be the nailed-together kind or the re-usable type which fit together like the sections of a Chinese block puzzle. The forms are easy to make and can be used over and over again. Two-inch-thick wood stock will mold blocks strong enough for patio use.

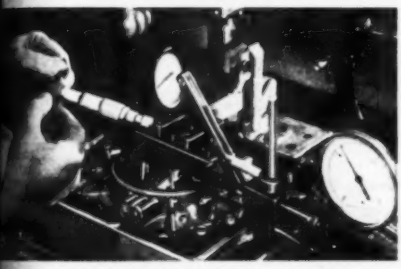
Making the blocks. Measure out quantities of cement, sand and gravel (or well-washed anthracite cinders) in a ratio of 1:2:3 respectively. Use a wheel barrow or old metal tub for mixing. Add a coloring agent if desired. Next, add water to the mix until a workable consistency is achieved. Finally, pour the concrete into the (greased) forms and allow at least one week to dry. By the way, forms can be made in any shape—square, round, rectangular, oblong, etc. About 25 of these blocks can be made for less than $5.00. •

MIX is packed into forms set on greased fiberboard. The blocks should dry for a week before being used.

HOW AMERICA'S NUMBER ONE CARBURETOR SHAPES NEW-CAR PERFORMANCE AND STYLING!

When automotive styling calls for lower hood lines. This means Rochester-GM Carburetors must be designed to accommodate these changes and still perform their many jobs with accuracy and precision.

The many demands put on a carburetor by accessory systems make advanced research to keep pace with automotive progress. Economy and performance must always remain at their peak.



Top-quality precautions are taken in the manufacture of your Rochester-GM Carburetor to assure reliable, trouble-free performance. For example, every carburetor is 100% tested.

Your Rochester-GM Carburetor must perform eighteen separate functions, such as providing vacuum for power equipment, in addition to its vital job of metering fuel. This means the carburetor must be designed and researched to meet today's many engine requirements. In addition, Rochester-GM Carburetor design leads the way to lower hood lines and today's smart styling. Such a complex and important part of your performance system requires skilled maintenance. That's why it's always wise to take your car to a Rochester-GM Carburetor specialist for periodic care. He's factory-trained in servicing your carburetor to give peak performance and economy. See him today.
Rochester Products Division of General Motors, Rochester, New York

Factory-trained Rochester-GM Carburetor specialists are trained by experts in the most modern methods of servicing your carburetor for maximum fuel economy and performance.

GM
GENERAL MOTORS

America's number one original equipment carburetors

ROCHESTER CARBURETORS

[*Continued from page* 128]

taken to mean that oil-filter efficiency now makes possible the wider spacing of oil changes, an assumption that should not be taken too seriously since filters do not take out diluent. The way some cars are driven in winter an oil change every 1,000 miles is an important engine protection.

When replacing the oil filter on the 292 cubic inch V8 engine don't forget to coat the gasket on the new filter with oil. Hand tighten the unit until the gasket contacts the adapter face and then advance it one-half turn. Fast idle the engine for five minutes to make sure no leakage develops. On the 332 cubic inch and 352 cubic inch V8's the mounting is different. Here sealer is applied to the new adapter plate gasket. While you're at it, clean the adapter filter recess and adapter gasket surfaces. Ford advises changing the oil filter and cleaning the crankcase ventilating system and air cleaner at each 4,000-mile oil change.

Engine oil should be SAE 20 or 20W for temperatures above 32° F. From 32° above to 10° below zero use SAE 10W oil. Un 10° below zero SAE 5W oil is rec mended. Of course, multiviscosity such as a 10W-30 can be used at temp tures above minus 10°. Below that perature this type oil should be 5W-20.

A few additional notes should h make your new Ford a better friend. the Folo-Thru starter drive needs cl ing, use kerosene but do *not* oil. If y Ford is to be used in a warm climate battery, fully charged, should have el trolyte of only 1.260 specific gravity. H initial engagement of the transmission Drive, Low or Reverse probably indic an incorrect idle speed or else need checking the throttle linkage. For b Select-Aire or the Polar-Aire condition use only Refrigerant 12.

Judging by the reports of satisf owners, the bugs are out of the 1959 Fo Don't put some of your own into your n Ford by not bothering to understand y car's particular service needs. •

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Smokes smooth — the whole bowl through!

POCKET TINS . . . MEDIUM AND LARGE SIZE HUMIDOR

Air Compressor

[Continued from page 118]

AUGES showing tank pressure (left) and orking pressure are positioned as shown.

e compressor by placing spacing washers nder it. Next, install the fittings for the r check-valve and pressure switch. Any exible hose which is to be used with the mpressor should be fitted with a swivel ut. Otherwise it will be necessary to reove the head from the compressor, screw e hose into the head, then replace the ead on the compressor.

Now mount the fittings for the regulator, lter, shut-off valve and safety valve. The egulator controls air pressure and is esential for paint spraying operations. The lter strains out moisture and foreign parcles in the air supply.

On all tanks there is a specification plate iving the maximum working pressure; be ure to set your pressure switch to correpond with this maximum. Set the safety alve approximately 10 per cent higher an the working pressure. These valves n be adjusted to operate at 25 to 200 ounds psi.

Attach one end of the hose to the com-

[Continued on page 159]

NIAGARA FALLS

On tour or around town, drive with Quaker State, the oil that cuts engine wear, prevents engine breakdown. Fortified with anti-wear detergent additives, this pure Pennsylvania oil stops rusting and corrosion, eliminates sludge, carbon deposits and damaging acid action. Result: moving parts work smoothly and friction-free under all driving conditions! Next oil change, insist on Quaker State.

QUAKER STATE OIL REFINING CORPORATION, OIL CITY, PA.

Member Penn. Grade Crude Oil Assn.

1859— 100th Anniversary of Drake Oil Well and Founding of the Petroleum Industry —1959

[*Continued from page* 105]

Keen uses an engine shaft protector plate bolted to the bottom of the mower base, eliminating better than 90 per cent of crankshaft bending. Lawn-Boy reports that their mower has a guaranteed non-bendable crankshaft which is achieved through the introduction of the shock mountings on the engine and a closely coupled muffler attachment to assist in the transmission of shock from the point of impact through the housing instead of twisting the crankshaft.

Reo uses Austempered steel blades which absorb sudden shock without harm to drive shafts. In fact many manufacturers use Austempered blades and shear bars. Sunbeam explains that Austempering is a trade name for a heat-treating process which produces a uniform hard and tough crystalline structure in the steel.

Toro's low silhouette and low center of gravity on its 1959 models make it possible for them to use a one-inch crankshaft in contrast to the average three-inch, making it much tougher to bend. The Austempered blade of Yuba's Choremaster has a safety shear clutch to protect the engine from damage.

Now to the matter of that old tendency to throw stones. Get 3,400 or more rpms into a 24-inch rotary blade and the tip is bucketing along at something like 400 miles per hour. It is generally regarded as inadvisable to field even a softball going that fast. Today, virtually every manufacturer has the housing descending well below the blade level. They've set their outlets for the grass clippings (and any stray missiles the blade rustles up) to one side and usually to the front. Some of them are using two or three shorter blades working side by side. When there are two, they're both driven off the same shaft. When there are three, the larger center one is directly driven and the two outer ones are belt driven.

Most manufacturers feature staggered wheels in 1959, which is mower talk for "they moved the right front one back far enough to leave room for the grass discharge chute in front of it." Lawn-Boy goes a little farther than most of the staggered-wheel users. They've set the left front wheel as an activated pilot wheel with a spring-loaded design.

Another turf saver is Reo's use of front-wheel drive, letting you rear the mower up for turning without digging a divot. Toro uses a wide disk below the blade to prevent too-close mowing. Yazoo has very large wheels to prevent the mower from bogging down in soft turf and to facilitate sharp turns. McDonough's Snappin' Turtle has, in contrast, no wheels at all. It just glides along on a wide skid pan propelled by a roller drive.

Hardly a mower on the market today preserves yesterday's tradition of letting the grass gather in erratic clumps and drop off in globs at random. While manufacturers deepened the sides of the housing to protect the blade and the user, they shaped it so that a discharge chute on the rotaries sprays the grass to one side. Usually they offer a perforated cap that fits over the chute exit so that the blade chomps up the grass or leaves for a mulch.

The old handles that stuck out like a hitch-hiker's thumb to trip the unwary are on the way out, too. Atlas-Aire has handles that adjust to the height of the user and stand upright for storing, as do Cooper's Aladdin, Eska, Sunbeam and Yuba's Choremaster. Foley's Tartan mowers have handles that fold down for easy storage. Lawn-Boy's mowers have one handle position that permits the machine to be hung with the wheels flush to the wall or you can remove and re-attach the handles easily without tools.

Both tall and short mower operators will appreciate the attention paid to easy adjustment of the mower handle length on '59 models. Atlas-Aire has an adjustment span of five inches. There's both a "hi" and a "lo" side on Lawn-Boy's removable handle. Many others are adjustable too.

Many of the '59 designs put their emphasis on the ease of setting cutting heights. In fact, setting cutting heights without tools became quite a fad this year. You can generally do it with a little hand lever, sometimes foot-operated, or a dial. The cutting heights range from one-half to four inches, depending upon the mower.

Not to mention the increased horse-

power in 1959 mowers would be to overlook one of their primary characteristics. They'll do a better job, generally, because of the more powerful engines in use.

With the '59 mowers, there's hardly any necessity for following up the machine with a lot of hand trimming. By setting the wheels so that the blades project beyond them, these mowers can cut to within ⅜- or ¼-inch of trees or walls and comparatively few must work more than ⅝-inch away. McDonough's Snappin' Turtle even has a special "grass pickup finger" which they maintain picks the last blade of grass off the wall! Cooper's Aladdin brand has a special power edger and trimmer which is 75 per cent self-propelled and can trim within ¼-inch. Use its handle-mounted throw lever and it's changed over into a power-driven edger capable of a cut as deep as four inches and of edging 90 feet per minute at any angle. Jacobsen has a well-constructed edger-trimmer and Reo has a three-wheeled Pivotrim rotary trimmer which mows any contour up close without lifting the front wheel.

If you could see all the 1959 riding mowers lined up before you at one time, you'd find it difficult to believe that they were all designed to do the same basic job. Among them would be self-propelled units, some pulling sulkies, some carrying a saddle. And also among them you'd see miniature farm equipment capable of doing more than a half-dozen chores that once were tough and manual.

Probably the first rider many will choose will be the sulky. These sulkies are hitch-hikers on the self-propelled mowers and the sulky attachment is an optional accessory. Manufacturers offering them include Falls on their 22- and 25-inch Roto Clippers, Goodall with its 32-inch, three-bladed unit and McDonough with its Snappin' Turtle.

The riding mowers proper this year are colorful, finished-looking vehicles and they come with some driving and safety features that do them credit. Many builders are introducing their first riders in '59. Speed, turning radius, width of swath, convenience and accessibility of controls, versatility of conversion for several uses, and comfort for the rider are just some of the things emphasized by these caterers to the elite among lawn tenders.

Let's take a good, close look at one of the riders, one that is typical of the better new ones being shown this year. It is selected at random from among the top ten or so.

Belen's Ridemaster has a 5½-hp Lauson engine with a rewind starter. It cuts a 26-inch swath. Just two of its comfort features are a cushioned seat of airfoam and an inclined footrest. It uses automotive steering, automotive-type tie rods and oscillating front-wheel suspension which makes possible a tight, 39-inch turning radius. The automotive-type differential equalizes torque to both rear wheels and keeps wheels from dragging, even on sharp corners, without tearing the lawn. You can set the speed in any of six forward positions or reverse, without stopping or clutching, and braking is automatic in the neutral position. Its forward speed is up to 4.6 mph.

Cutting height is set by a lever that lifts and locks the blade into position. A blade clutch-control lever at the left of the steering column stops and starts the blade instantly and independently of mower travel.

Thanks to a simple pin-type rear hitch, the Ridemaster can lug all sorts of equipment around the yard, including a utility cart, 24-inch lawn roller, 28-inch seeder-fertilizer, 32-inch lawn sweeper, three-gang reel mower, 30-inch lawn aerator and, to make sure you get year-round use, a 36-gallon angled snow blade which doubles as a grader can be attached to the front. Ridemaster also offers a 12-volt battery electric starter kit and a leaf mulcher.

Now let's look at another category of riding gardening aids, so diverse they're hard to give a group name.

First, there's the riding tractor, kissin' cousin to some of the riding mowers we've already ogled. A good example is Yuba's Choremaster. The engine is mounted over the drive wheels for extra traction and accessibility and to allow a rear exhaust. It has touch-of-the-toe, instant-action brakes and it can pull and remain stable on a 40 per cent grade. The Choremaster has fully pneumatic tires, turns on a tight radius and

Power Mowers

can be purchased with a Clinton 4.0- or Lauson 4.5-hp engine, without mowing attachment, for $295.

The 24-inch rotary mowing attachment has a blade that can be locked with a padlock and trims within a half-inch of obstacles. You can get an idea of what the less expensive attachments will cost from the suggested prices of this manufacturer: rotary mower attachment, $29.50; aerator, $42.50; roller, $29.50; seeder-fertilizer, $39.50. The factory quotes no price on a carry-all cart.

Second, is a vest-pocket tractor—anyway it weighs only 100 pounds. This is Lawn-Boy's Loafer. Even though it is powered by only a 2½-hp engine, it can pull half-ton loads, thanks to its 47-to-1 gear ratio. The Loafer is 56 inches long and 22½-inches high and is designed for vertical storage. It's fitted with a rear tractor-type draw bar that will let it pull a single or three-gang 21-inch reel mower, a spreader, aerator, roller, seeder, sweeper, pallet or cart or push a rotary mower or snow blade. The price is $169.95.

Third, there's the type that Toro calls the Power Handle. This is a 3-hp engine and attached handle which carries controls capable of powering eleven different components. The $89.95 device can be used to power products ranging from $209.95 for a powerful 25-inch front reel mower to a $34.95 aerator kit. Among the products are other reels in 20- and 25-inch size, a 22-inch rotary, a 17-inch snow plow that can throw half a ton of snow 15 feet to either side in a minute, a 15-inch tiller, small and large edger-trimmers, a pump, generator and a pump spray kit.

They're rangy, these 1959 power mowers, ranging from below $50 to mink coat prices, and they'll do their traditional job of keeping the lawn trim with greater authority and fewer headaches then in the past—and millions of lawns the country over will bear evidence of the fact this summer. •

A ball of cotton dipped in denatured alcohol will remove mildew from books that have been in storage.

Concrete In Color

[*Continued from page* 111]

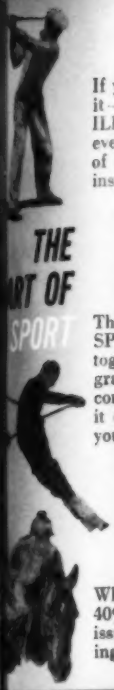
BRUSH ON two coats of stain, a semi-opaque finish such as Col-R-Tone, and finally wax

thoroughly using trisodium phosphate (available at paint stores) dissolved in warm water.

To soften old paint for removal by scraping, dissolve one can of lye in a gallon of water. Soak the painted surface for at least an hour, then rinse with clear water and let dry. Then apply a sealer to minimize the porosity of the concrete.

Use pigments and stains with imagination and taste. Carefully selected contrasting colors are especially effective.

MIX water and muriatic acid (5:1) to dull slick-finish concrete. Rinse before staining



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Trestle Table

[*Continued from page* 112]

SHAPING TOOL or plane is used to remove the sharp edges after assembly is completed.

top, the stretcher rabbeted into the legs and a general dress-up in tailoring!

To finish our table, we used an antique pine stain sealed with two coats of lacquer. When each coat dried, the sheen was rubbed off with fine steel wool. Then followed a coat of varnish which received a steel-wool rubdown to produce a mellow, golden tone. After a brisk polish with paste wax, it was fit for a king—at least an old-fashioned king.—*Robert Beason*

ANTIQUE PINE STAIN, made by Cape Cod Finishes, is thinned down to desired shade.

Gotta Dime?*

MECHANIX ILLUSTRATED

PLANS CATALOG NUMBER 12

PRICE TEN CENTS

132

TESTED PLANS

TABLE OF CONTENTS

AUTO PROJECTS 38

BOATS

Rowboats and Dinghies 3

Outboard Boats 5

Inboard Boats 9

Cruisers 11

Sailboats 13

Auxiliaries 18

Miscellaneous Boats 20

FURNITURE 34

GENERAL PROJECTS 35

MODELS

Airplanes, Control-Line 22

Airplanes, Free-Flight 25

Boats 28

Cars 27

PHOTO EQUIPMENT 32

TELESCOPES 32

WORKSHOP EQUIPMENT 34

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Okay, send it to Mechanix Illustrated Plans Service, Greenwich, Conn., for the latest copy of MI's Plans Catalog. It's just chock-full of projects to keep you happy in your workshop—132 of 'em. Don't forget your name and address. Number too, please (zone that is!).

ew Paint Covers Porous Walls in 1 Coat!

or that drab basement or garage interior! New Du Pont ne-Coat Basement Wall Paint comes ready to use in 8 astel colors and white. Thick as jelly, it covers rough, orous surfaces smoothly with one coat. Excellent, too, r all interior smooth plaster walls. Ceiling painting is pecially easy. Clean brushes and equipment with soap d water. Now at your Du Pont Dealer's. His name is in e Yellow Pages.

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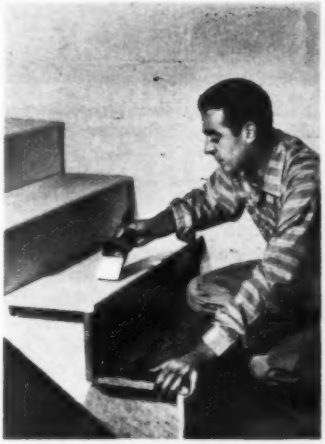
uy the paint that's worth the work! Your time is too luable to risk on "bargain" paints. Buy Du Pont Paint and you ow you're getting the most modern finishes made . . . and that the auty will last. Du Pont Paint Chemistry assures you of that.

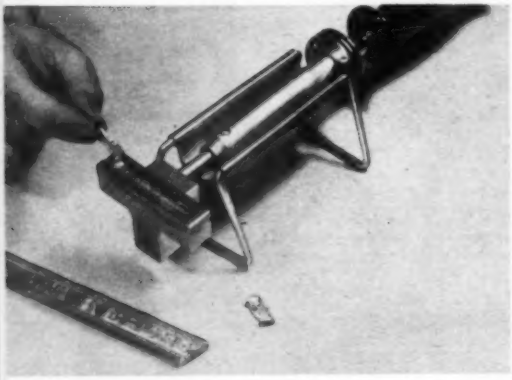


DU PONT

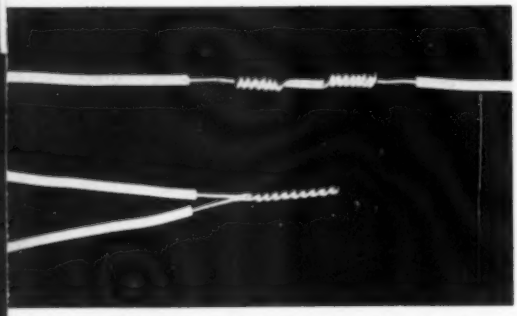
Better Things for Better Living
. . . through Chemistry

Soldering Pot

[Continued from page 125]



FAST-HEATING soldering pot is fed chips of bar solder which melt quickly in trough.



THESE TWO perfect dip-soldered splices could only have been made by using a soldering pot.

8-32 screws and be sure these line up with the holes in the mounting block. Finally, a ⅜x3-inch brass rod is driven into the small block and the unit assembled.

To make a splice, strip the wires and sand or scrape them clean. Then apply a coating of flux to each wire. Twist the wires together with clean pliers. Never touch a cleaned wire with your bare fingers.

To use, plug in the iron and fill the trough with chips of bar solder. Dip the splice into the pot when the solder is molten. Once you've soldered your first splice using this pot you'll wonder how you got along without it before. •

Book Notes

MOTOR SERVICE'S AUTOMOTIVE ENCYCLOPEDIA, Jud Purvis and William K. Toboldt, eds.; pub. by Goodheart-Wilcox, Chicago 5, Ill. 788 pages. Price, $7.50.

LOOKING for an up-to-the-minute automotive library in one comprehensive volume? Then this is the book for you. The professional mechanic and do-it-yourself car owner will find in this 1958 edition all the information he will need to fix *all* parts of all cars built during the past 25 years—including service specifications for over 100 foreign models. More than 2,800 illustrations and diagrams accompany the clear, non-technical language of the text. By teaching fundamental principles of operation and basic service procedures, this encyclopedia provides the mechanic with the know-how which will enable him to quickly diagnose trouble and make the required repairs on any car, any time. Here is a book that might rightly be called the auto mechanic's bible.

MATHEMATICS FOR THE LAYMAN by T. H. Ward Hill; published by Philosophical Library, New York 16, N. Y. 342 pages; price, $4.75.

MATHEMATICAL TABLES AND FORMULAE by F. J. Camm; published by Philosophical Library, New York 16, N. Y. 144 pages; price, $2.75.

THESE two handbooks from the presses of Philosophical Library will soon be the dog-eared companions of many a hobbyist, craftsman, builder and engineer.

Mathematics For The Layman is a lucid little volume designed to increase your skill with figures. Though not a textbook, it contains enough simple exercises to increase your self-confidence and is exciting enough to convince you that mathematics is a world of tremendous value and endless fascination.

Mathematical Tables And Formulae brings together information that is generally scattered throughout textbooks in the various branches of mathematics. It includes mathematical symbols, interest tables, formulaes in algebra and calculus—and many others. Invaluable as an aid to engineers, science students, etc., as well as a practical home reference.—*D.H.*

photographed at Florida's Silver Springs

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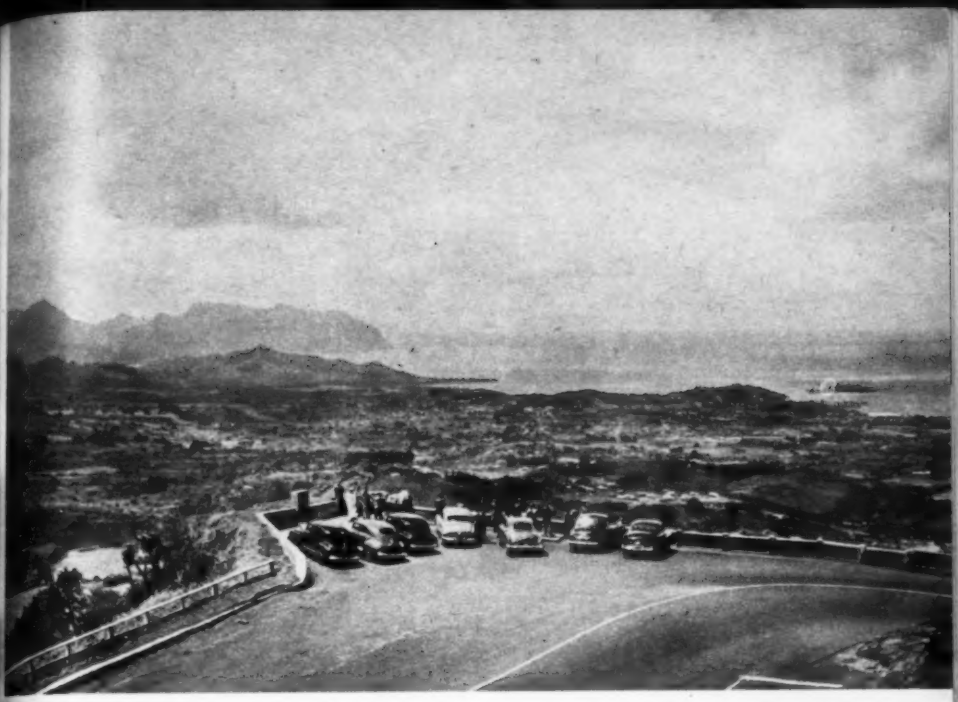
Fond du Lac, Wisconsin

Monthly PHOTO Contest

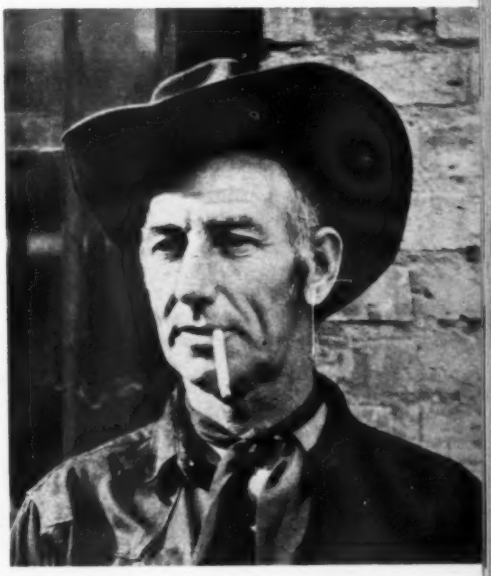
Please put your name, address and picture-taking data on back of each print. Wrap with cardboard stiffeners and enclose a self-addressed stamped envelope or postage for return of unused photos. Prize-winning pictures are not returned. Judges are MI Editors. Duplicate prizes awarded in case of tie. Address entries to: *Mechanix Illustrated*, Photo Contest, 67 W. 44th St., N.Y.C. 36.

1st Prize ($25) .....GONE TO SEED
George Bostick, Chicago, had Royal Pan film in his 4x5 Pacemaker camera; f-16, 1/100th.

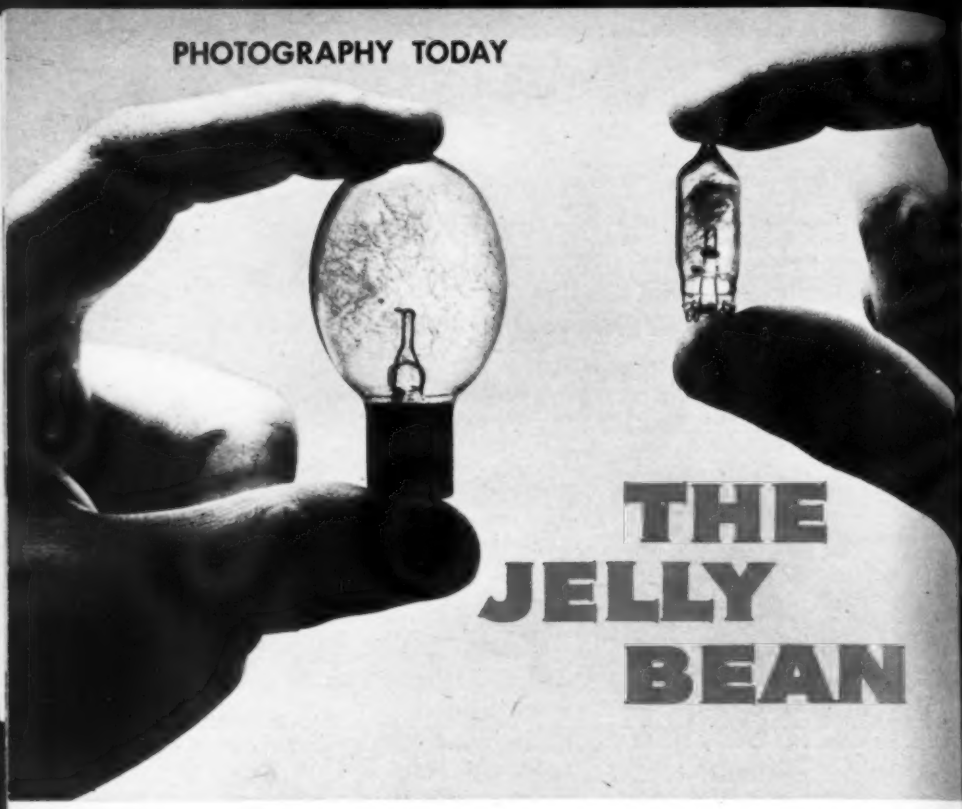


$10 Award .....HAWAIIAN VISTA
Bill Cook, Macon, Ga., used Speed Graphic and Super XX film; setting: f-16 at 1/200th.

$10 Award .....HOSPITAL CORRIDOR
Gertrude Guiberson, Olympia, Wash., shot this perspective with a Yashica camera. Tri-X film was rated at ASA speed of 400; f-8 at 1/10th.



$10 Award .....TOP HAND
This portrait was made with a Graflex 22 by Lloyd Byers of Fargo, N. D. He used Tri-X, setting of f-8 at 1/100th.



THE JELLY BEAN

LIFE-SIZE photos of the new Jelly Bean flash bulb and a No. 5 lamp.

By Robert Brightman

As Alice in Wonderland said, "Things are getting smaller and smaller." Take flash bulbs. The first flash bulb was as big as an orange; then we had a press 40, lemon size; then the No. 5, walnut size; then the M-2 Midget, big as a marble. And now comes the Jelly Bean, a new flash bulb introduced by Sylvania and General Electric which is just about as big as—a jelly bean!

This mite of a bulb is filled with zirconium. It has no base. Instead, to make electrical contact the wire leads from the inside of the flash bulb are drawn through the glass and bent back to make contact with the socket of a reflector soon to be introduced. Because no reflector was available for these bulbs, the improvised set-up shown on the bottom of the next page was used to test the light output of these miniatures.

Three identical shots with three different bulbs were taken of the same part of a living room with a 4x5 Graphic loaded with Royal Pan film. Each exposure was an open-and-shut flash shot with the diaphragm for all pictures set at f-16. Before each photo was taken, the letter corresponding to the letter over the particular flash bulb being used was pinned to the edge of the chair, as shown.

Photographs A and B (the Jelly Bean and the M-2) were about evenly exposed, with the light output slightly in favor of the M-2 lamp. While the card is visible in the photograph at the bottom of the page, the letter C is not because the scene was overexposed in comparison to the first two shots.

The net result, we can safely say, is that the Jelly Bean provides adequate illumination for an interior scene taken with black-and-white film as well as

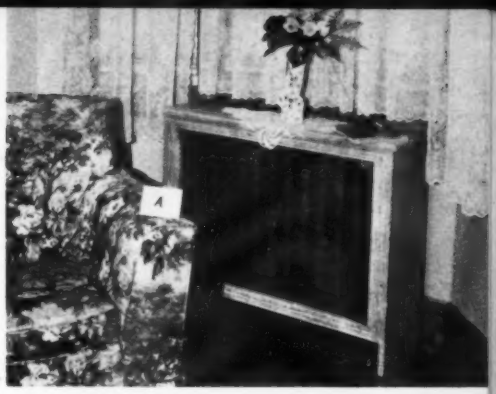
color. Even though no reflector was used except for a white cardboard, a relatively high guide number was obtained. At ten feet, open flash, using stop f-16, the guide number would be 160 with a high-speed film. The recommended guide number for Kodachrome will be 44, for Ektachrome and Kodacolor 55, and for Verichrome 90. All these guide numbers are predicated upon using the flash bulb in a suitably polished reflector (which will be available shortly), with shutter speed at 1/60th of a second.

* * *

A new daylight loader announced by Ansco, Easy-Loader, is sold complete with enough film to load eight 20-exposure rolls of 35mm Anscochrome for little more than the price of five rolls, $10.75.

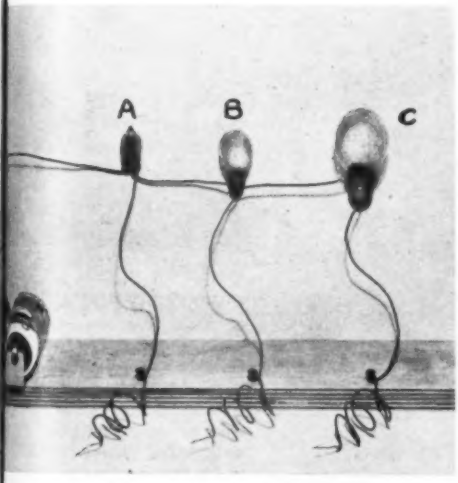
An interesting innovation is the packaging of the film. Each 20-exposure length of film is pre-notched at the factory. If you follow the directions for loading you will find that the notched part of the film comes up at the exact point to make a 20-exposure length of film. * * *

[*Continued on page* 156]

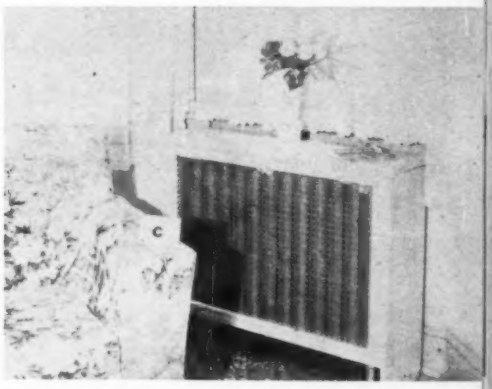


JELLY BEAN was used for lighting this photograph with an open flash set at f-16.

SAME SCENE taken with M-2 midget bulb. Lamp-to-subject distance, ten feet.



JELLY BEAN (A), Midget (B) and No. 5 lamp (C) are tested against a white background.



OVEREXPOSURE with a No. 5 lamp. All shots were taken with Royal Pan film.

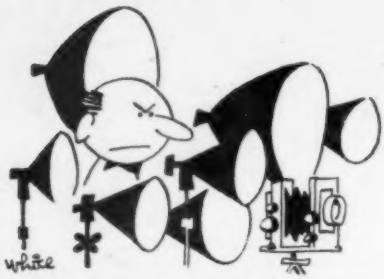
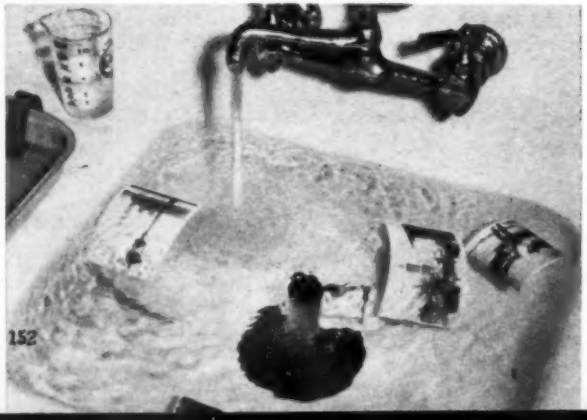


PHOTO TIPS

USE A SYNTHETIC SPONGE to prevent water spots on film. Slice a new sponge halfway through, wet to soften, and then squeeze out excess water. Use as shown to swab both sides of the film at once.



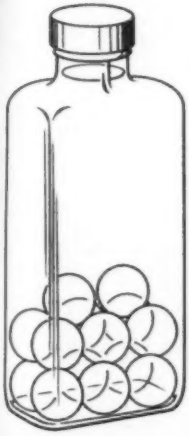
OVERFLOW PIPE converts a sink into an efficient print or negative washer. Solder wire guard on top of brass tubing. Then cut a snug-fitting hole in a rubber stopper and slip over tube. Water pressure holds the gadget in place.

BOTTLE CAPS make practical lens covers. Get a cap that's a near-fit, then line it with felt until it slips snugly over lens.

HAVE YOU FORGOTTEN when you bought the batteries for your one or more flash units? Why not tape the purchase date to a prominent spot on each flash attachment?

FITTED WOOD LID over hypo tray halts evaporation of solution; then it need not be repoured into storage bottle after use.

PHOTO CHEMICALS deteriorate faster in partly-filled bottles. Slow this process by using glass marbles to displace volume.



CLOTHESPINS (spring-type) make practical hangers for drying negatives. Notch pins as shown, then suspend them from wire.

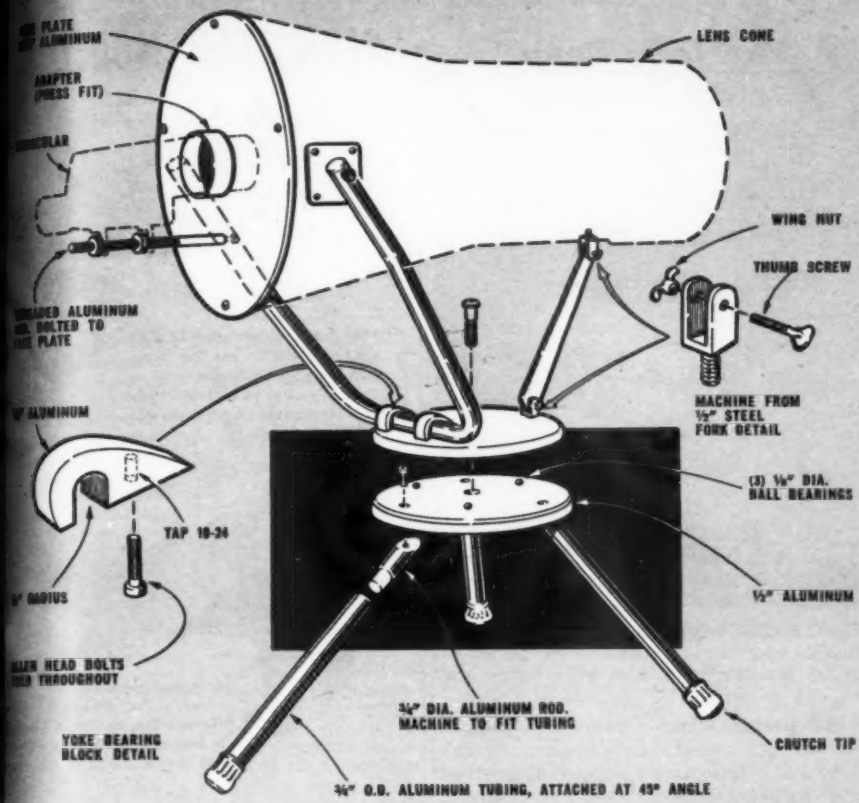
Buy this $1,200 war-surplus lens for $39.50 to build a 48-power tele

Cutting the back plate for the lens cone. This disk holds the monocular assembly.

TABLE-TOP TELESCOPE

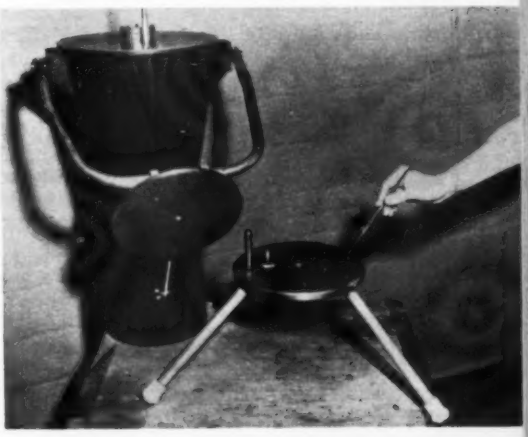
IF you have ever wanted a high-powered telescope with a large objective here is your chance to build one at a cost of less than 25 per cent of a store-bought model.

During World War II the United States Government commissioned Bell & Howell and Eastman Kodak to make aerial lens assemblies for use in air reconnaissance. The completed lens assemblies cost the government about



$1,200. But, due to the constant march of progress you can now buy these lenses at a *real* fraction of their cost. You can get a used f-6, 24-inch focal length lens for $39.50. These mounted lenses, complete with a sturdy carrying case, are available from Edmund Scientific Corporation, Great Barrington, N. J. If you want to put on the dog you can buy a new one from this outfit for $59.50.

These Aero Ektars and Tessars are superbly mounted in cast aluminum lens cones. When coupled to a monocular of eight power you will get a telescope of about 48 power with excellent definition. For the eyepiece and erecting system you can get a low-priced Japanese-made monocular from Edmund or from A. Jaegers, 691 Merrick Road, Lyn- [*Continued on page* 158]



Lower plate holds the three ball bearings in three equidistant hemispherical recesses.

The Jelly Bean

[*Continued from page* 151]

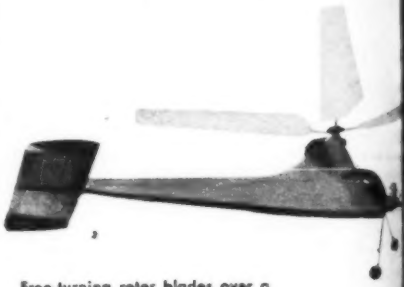
ANSCO'S EASY-LOADER has a light-tight hood which houses the cartridge to be reloaded. Turning the bar pulls film from lower box.

Combination Fixer-Developer. Back in 1899 the dignified and august British Journal of Photography published a report on a combination developer and fixer. While it is a little hard for us moderns to accept this premise, *it is possible* to develop and fix a print or a film in a bath in which the developer *and* fixer have been combined. A great drawback is the fact that the speed of the film is drastically affected. For example, a film with a Weston speed of 200 may drop to a Weston 1 using a combination developer-fixer. However, constant experiments seem to have licked this bugaboo and now the Cormac Chemical Corporation of 80 Fifth Avenue, New York City, announces and has successfully demonstrated a combined processing solution which they call Unibath, which does not affect the film speed. In fact, it seems to increase it! A quart of this working solution (it is diluted 1 to 1) will process ten to 12 rolls of 36-exposure 35mm film. Temperature is not even critical; it can range from 65° to 85° without affecting the density or contrast of the finished print or film. A pint of Unibath, which makes a quart of working solution, costs $2.25. •

PLANS FOR MODEL FA

This detailed, 18-inch STANLEY STEAMER model can be fitted with a working steam engine. Components of its all-brass body are assembled by soldering.

Commonly called the Stinson "Gull," the RELIANT knifes through the air like a true bird. It has a 31-inch wingspan and can take a .19 to a .49 engine.



Free-turning rotor blades over a conventional engine and propeller enable the GYRO SKIPPER to be flown as a free-flight model or to climb in a tight spiral.

Send 50¢ for each plan ordered to Mechanix Illustrated Plan Service, Fawcett Building, Greenwich, Connecticut. *Please send me the plans I have checked. I am enclosing the required amount.*

☐ STANLEY STEAMER .....No. M-
☐ STINSON RELIANT .....No. 38
☐ GYRO SKIPPER .....No. 24

I am also enclosing 10¢ for your latest MI Plans Catalog containing pictures and descriptions of 132 plans.

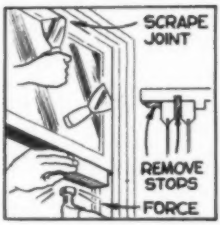
NAME .....

ADDRESS .....

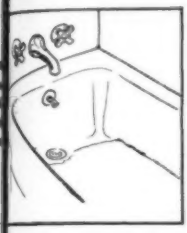
CITY .....ZONE NO.....STATE.....

Dried paint has sealed shut the top sashes of my windows. How should I pry them loose in order to ventilate the room? V.M.P.

By running a putty knife around the frame to cut the paint. Failing this, hold a small wood block to the bottom of the sash at each corner; hammer lightly until the paint loosens. Still stuck? Then you'll probably have to remove the inside stops to free the sash.



My new bathtub is very slippery. Can it be "treated" somehow and made less slippery? G.D.

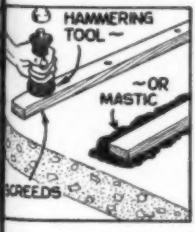


Yes, you *can* etch your tub with muriatic acid. But *please*—don't do it! The damage such etching will do to your tub will be permanent. Certain skidproof paints might be applicable in this case. But I suggest you keep using that rubber bath mat.

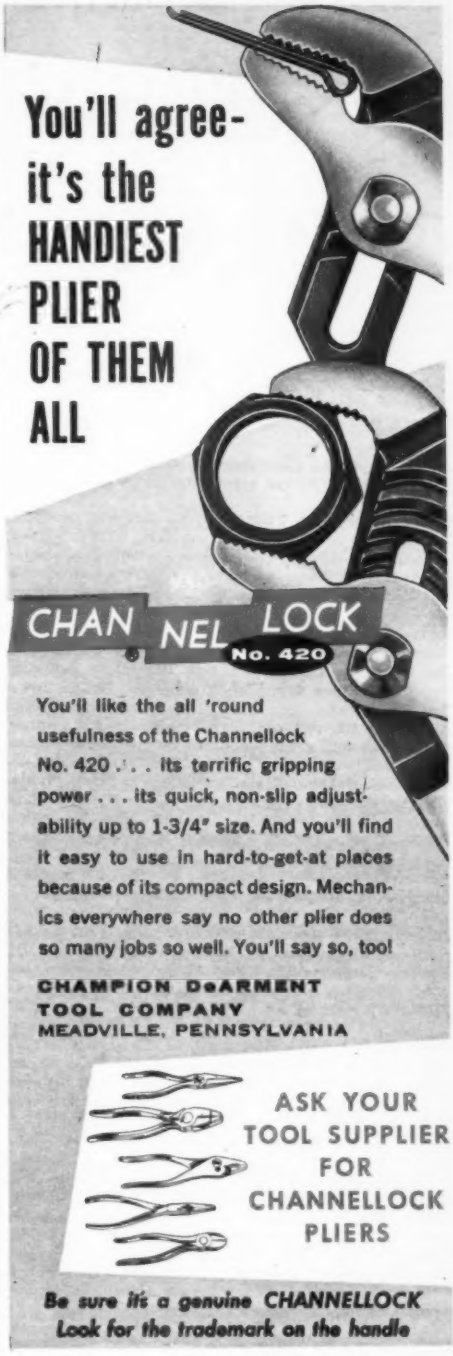
Paint soon peels and cracks on my wooden gutters. How can I get it to adhere? R.W.M.

Perhaps your wooden gutters have never thoroughly dried out. Apply a coat of rubber-base or asphalt paint to the inside of the gutters to protect them from moisture. When dry, repaint them on the outside.

What is the best way to lay down a wooden floor over an existing concrete floor? G.J.P.



First, coat the concrete floor with a good asphalt dampproofing compound. Then lay down some 2 x 4 screeds on 12-inch centers with Shure-Set fasteners or special mastics made for this purpose and nail flooring to the screeds.



Golden Hammer Awards

[*Continued from page* 121]

Norway, Me.; Francis O. Hendricks, Jr., Excelsior, Minn.; Floyd Hull, Omaha, Neb.; John R. Ekstedt, Lynnwood, Wash.; Medley Harth, Louisville, Ky.; David B. McNeely, Calvert, Tex.; Herbert Townley, Jacksonville, Tex.; James A. Goodbrand, Ontario, Can.; Sgt. James H. Johnson, North Highlands, Calif.; Norman A. and Irene P. Buckner, Minot, N. D.; E. B. Karns, Rocksy River, Ohio; Richard S. Tatem, Eastford, Conn.; G. Hollingsworth, Lincs., England; Gaylen Russell, South Pittsburg, Tenn.; Robert McMordie, Richard Griffin, Douglas Ives, Adrian, Mich.; Paul P. Chapla, Josephine, Pa.; Joe Furrex, Dayton, Ohio; John M. Bishop, Lenoir, N. C.; J. A. Lacy, Gallatin, Tenn.; Dean Baker, Ontario, Can.; Joe Votik, Bronx, N. Y.; George Anderson, Manitoba, Can.; Clarence F. Berkemeier, Dayton, Ohio; J. Porter Evans, Jr., Lexington, Ky.; Richard L. Gibbs, Madera, Calif.; John McGrath, Woodhaven, N. Y.; Gerald R. Warren, Cohoes, N. Y.

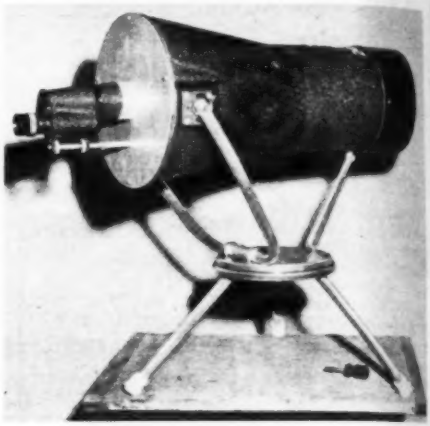
The following craftsmen have been awarded CERTIFICATES OF MERIT for their projects:

Carl M. Zilsberger, Buffalo, N. Y.; Kenneth Clodi, S. Wilmington, Ill.; Walter A. Stanner, Niles, Mich.; William H. Davis, Beverly, Mass.; Maurice Lahaie, Quebec, Can.; Norman R. Bailey, Northampton, Mass.; Ray Clark, Fontana, Calif.; Ben W. Warnack, Decatur, Ill.; John Smith, East Point, Ga.; Robert Rynell, Washington, Ill.; Wilmer Hedrick, Jr., Telford, Pa.; A. J. Keenan, Bellevue, Wash.; George L. Rodgers, Ontario, Can.; John L. Walker, Chicago, Ill.; Glenn C. Hammond, Jr., Fosters, Ohio; W. A. Shipman, Dallas, Tex.; Jack Hood, Tulsa, Okla.; George Verpent, Jersey City, N. J.; Robert L. McClain, Havre de Grace, Md.; James W. Lawrence, Vancouver, Can.; Russell Hockersmith, Chicago, Ill.; Arhie T. Vann, La Jolla, Calif.; Jefferson M. Hooton, Houston, Tex.; Victor DeJoric, Belen, N. M.; William Pitt, Wilkinsburg, Pa.; C. A. Gielish, Los Angeles, Calif.; Jerry King, Quebec, Can.; W. F. McBrayer, Oakland, Calif.; Richard A. Bettendorf, Knob Noster, Mo.; Edward C. Ferringer, Lafayette, Ind.; Howard Willenborg, Covington, Ky.; Peter J. Kapsch, Ozone Park, N. Y.; John Hrynio, Fayetteville, N. Y.; Joseph A. Kelman, New York, N. Y.; Russell Macdonald, Jr., Willowdale, Can.; John M. Archibald, Hialeah, Fla.; Paul R. Notz, Plymouth, Wis.; Ed Persley, Fraser, Mich.; Earl M. Papenfus, Wausau, Wis.; Harold J. McMahon, Walkerton, Ind.; James A. Yancey, Welch, W. Va.; Frederick J. Morgan, Jr., East Liverpool, Ohio; J. J. McMurdo, Quebec, Can.; Roger Keith, Revere, Mass.; Stanley Delo, Blanchard, Mich.; Albert Bator, Sunnyside, Wash.; Harold J. Coyle, La Mesa, Calif.; Walter T. Bond, Newport, R. I.; William Blake, Liberty, Tex.; R. K. Poynton, Derby, England; Tracy H. Smith, Waterford, Conn.; K. Drummond, Catfrod, England; William & Charles Betz, Canton, Ohio; Donald E. Coleman, Sr., Kokomo, Ind.; D. E. Barber, Ealing., England; Hugh M. Gordon, Ontario, Can.; Edward J. Southurik, Jr., Woodside, N. Y.; A. W. Mistele, Cedar Rapids, Iowa; Peter H. Bauer, South Glastonbury, Conn.; Sandalo Simonetti, Westbury, N. Y.; Ed Born, West Roxbury, Mass.; Richard B. Osborn, Roslyn, Pa.; Albert Fenstemaker, Berwick, Pa.; Frank J. Schirnhofer, Rexford, N. Y.; Dale Poulter, Des Moines, Iowa; Anthony Giamnotti, Utica, N. Y.

Watch for names of more winners next month.

Table-Top Telescope

[*Continued from page* 155]

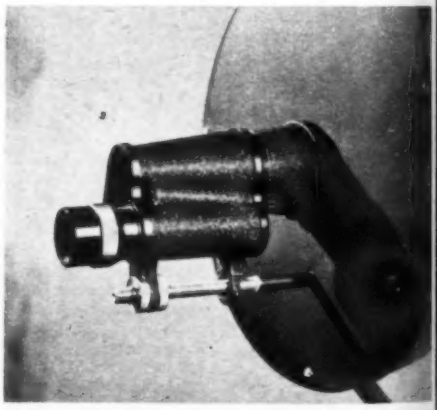


The unique mounting gives the telescope the required elevation plus very good stability.

brook, N. Y., for about $12.00. The technique is to remove the objective of the monocular and merely use the eyepiece and prism assembly as a complete ocular and erecting system.

Since the lens cone is of substantial weight, a somewhat unique mounting technique was designed. The pivot points

[*Continued on page* 172]



The monocular eyepiece erecting system is locked and rough-focused with bolt as shown.

Air Compressor

[*Continued from page* 137]

pressor outlet; to the other end attach a quick-connector unit. A quick connector makes the compressor adaptable to other tools which are so fitted.

The motor on this compressor is one horsepower. Bolt it on the mounting base and connect it to the pressure switch with a three-wire cord using the third (green) wire for the ground.

This baby is economical to use and will give years of service. A new compressor of this type would cost upwards of $350. •

PARTS LIST

(See diagram for numbered items)

1. 4 pipe T's, 3/8"
2. 2 short nipples, 1/4"
3. 3 pipe bushings, 1/4"x3/8"
4. 2 pipe elbows, 3/8"
5. 5 pipe nipples, 3/8"x1"
6. 3 pipe bushings, 3/8"x1/2"
7. pipe bushing, 1/2"x3/8"
8. pipe nipple, 1/2"x1 1/2"
9. pipe elbow, 1/2"
10. pipe nipple, 3/8"x1 1/2"
11. air shut-off valve, 3/8"
12. 2 hose clamps, 5/8"
13. 2 male hose end fittings, 1/4"
14. 2 street elbows, 1/4"
15. quick connector
16. 2 quick-connector adapters

refrigerator compressor, 2 cyl., 2 1/8"x2 5/8" bore and stroke (used)	$10.00
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filter material from automobile air cleaner
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4 compressor mount spacers, 3/4" high
4 motor mount bolts, 5/16"x2"
4 caster mount bolts, 3/8"x1 1/2"
2 eyebolts, 3/8"x3 1/2"
2 eyebolts, 1/2"x3 1/2"
3 cotter pins
2 axle wheel spacers, 3/4" long
2 bolts for tow bar, 5/16"x1 1/2"
2 bolts, 1/2"x2 1/2"
pipe thread half union, 1/8"
union nut
12' of copper tubing, 3/16" I.D., flare ends (unloader pipe)

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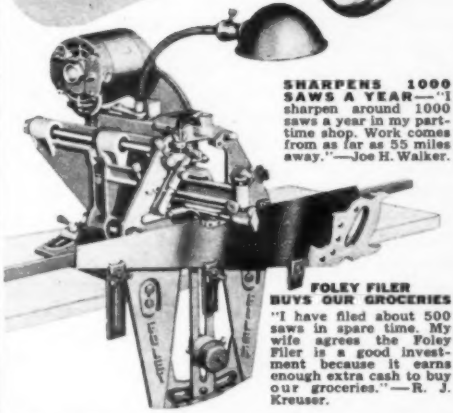

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Tom Tests Mercury

[*Continued from page* 92]

you choose to run. The only time when discomfort is experienced is when you want to pass with a limited margin of clearance. Then you become aware, like a stood-up bride after an hour or two, that this Mercury wagon is sadly lacking in the pick-up department.

Our test car was equipped with the Merc-O-Matic single-range transmission. For a few bucks more, a dual-range twirler is available but it seems doubtful that this would make much difference at high cruising speeds because the "dual range" merely means that you start one gear lower from a traffic light. It would help the dig-out from a standing start but for fast passing any advantage is doubtful. Actually, neither Lincoln nor Mercury has been as flashy as the competition in their automatic transmission cars since they stopped buying Hydramatics several years ago and went in for knitting their own. To me this seems unfortunate because in all other respects the Mercury is an excellent road car and just about the most comfortable station wagon I've ever driven on a long trip.

The seats are truly lush and there has been no skimping on upholstery. The whittled-down transmission hump adds much to the front-seat comfort. On the passenger side the cowl has been pushed forward and out of the way by what seems to be nearly a foot. This makes things a lot more comfortable for those traveling with you in the front seat. Even six-foot-four McMichael, sitting in the passenger seat, could easily cross his legs—something he hasn't been able to do in any other car since he was nine years old. However, for every action there must be a counteraction, and one of the counteractions turns out to be a glove compartment as inadequate as a 50-cent birdbath in Death Valley. Also, the clock has been moved so far over into right field that the driver almost needs binoculars to read it. The ash tray is hard to reach for the driver. All three are the result of moving the cowl forward, a good thing in itself.

While I'm picking the bones of this Mercury clean, let's get two more baddies out of the way so we can discuss the goodies with a smile—and this Mercury does have plenty of good things to talk about. The shift quadrant of this transmission (and apparently Mercury was the first to introduce and then abandon pushbuttons) is completely hidden when the wheel is turned slightly either to the left or right, as the horn-ring assembly blots it out. If you want to know what gear you're getting into, you'd better have the wheels straight forward. Also, from some angles the windshield distortion was disturbing, especially from the rear seats.

Now for the goodies. As already stated, this is a really luxurious car and even after 12 or more hours at the wheel the seats were still extremely comfortable. The brakes are excellent, better than those on most of its competitors. I brought the car to a complete stop from 100 mph in 387 feet. Top speed is definitely between 110 and 115 mph; I averaged 111.6 mph for ten miles on the Daytona Speedway. Acceleration with this transmission showed 11.9 seconds for 0-60 mph, which is quite amazing after a slow jump of 4.7 for 0-30 mph.

The Mercury handles beautifully through corners. Even while criss-crossing slightly up and down the 31-degree bank at the Daytona track it kept grooving like a golf ball in a mail chute. The bodywork was far better than the competition's in quality of finish and in the little details. For example, even the sun visors are held in place by nicely-designed, spring-loaded clips. The heater-ventilating system is tops, as proved when we ran this particular car through temperatures ranging from freezing to 90°. The foot vents did a better job than those on any car I know of today.

Our test wagon was also equipped with a third seat which was easily folded and shoved under floor level. The spare tire was easy to reach, being mounted inside and in a vertical position at the right rear of the body. A big feature with Mercury this year is the huge windshield wipers which clean the entire width of the windshield from right to left by working together in unison, like a couple of flat-on-their-back Rockettes. The windshield washer was extremely powerful and effec-

tive at speeds up to 80 mph, which is unusual since the jet of water from most washers at speeds above 50 mph either breaks up into blobs that go all over your roof or dissolves into a London fog that hits all the wrong places. Mercury has widened its tread slightly this year for better stability. On a careful check of gas mileage, with a heavily-loaded car and three passengers, we showed 15.8 mpg without making any attempt to conserve fuel.

Personally, I like the body treatment with the simulated wood paneling (made of Fiberglas) which gives this Merc a slight touch of the old station wagon tradition. Many wagons today look more like Pete's Hot Dog Emporium on the run. The hoodline in front of the driver seems lower than on most other cars. In fact, the forward visibility is great and allows you to see those potholes *before* you smash into them.

In summing up, this is a good vehicle with a few faults. Like all Mercury cars, you can tell after a short drive that here is a car that'll stay with you, if you wish, until Ed Sullivan is the oldest guy playing in the Senior Golf Tournament—and that will take a lot longer than some competing networks might like to think. This is a solid automobile. It sops up bumps like a fat girl on a skating rink. The last time we brought you a Mercury test we went into quite a lot of detail about the effort Mercury's made on its sound-deadening program. The division has spent a bargeload of dollars and hundreds of man-hours researching soundproofing material and eliminating squeaks and rattles. A hard 2,000-mile test such as I've just made with this Merc is quick proof that this program has paid off. Station wagons are notoriously noisy but this rig over the road was as silent as a bishop's stare. Wrapping it up, the '59 Mercury is a really good automobile, loaded with top value features. It has its faults—but then, what hasn't? •

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Tests Facel-Vega

[*Continued from page* 88]

on a 104-in. wheelbase, and with welded tubular frames in the best and most expensive sports car tradition, it stands 53 in. high. The skin is aluminum and the wheels are wire. It's a thrill just to sit in this bucket. Naturally, the upholstery is all beautiful leather and the instrument panel resembles a condensed version of UNIVAC. The power plant is Chrysler but the exhaust system is pure sex. The moment the engine is started you get a deep *Voom! Voom!* similar to blasting echoes from an underground mine. The transmission is pushbutton Torque-Flite.

After one or two starts it becomes apparent that this is the original easy-does-it kid. At the slightest toe pressure you leave the mark like an arrow suddenly released from a 100-pound bow. On high-speed, deserted highways this snarler will get you from Point A to Point B quicker than you can say it. Through bends and around the hardest turns it grooves like a Gold Cup boat through a Tunnel of Love. There are two back seats in this rig that are adequate for midgets and just right for people you don't like. This is a sportsman's cruiser for making a fast dash to a coupon-clipping jamboree or hustling your secretary down to see her ailing grandmother at Acapulco. In many ways this car reminds me of a big, glandular Aston-Martin and the design is definitely from the same school of thought, if not the same drawing board.

There have been a number of these connoisseur chariots built over the years for the delectation of the man who has everything but trouble—from Briggs Cunningham's aforementioned Vignale coupe to some of the Allards and the Dual-Ghia which has proved popular with the laughingly referred-to "Hollywood Watering Set." These are all cars calculated to catch the eye of the man (or woman) who wants a prestige item that will make him stand out in a crowd like Burl Ives in a bikini. Unlike some other luxury imports, if you should swallow a valve or striptease a button on the Vega's transmission, you just call your Chrysler dealer and get the answer to your service problem.

By no stretch of the imagination does this car have the ballroom interior space of some of our better-known domestic balloons—but then there are a lot of guys in this world who think P.T.A. stands for "Please Take It Away" and who'd be happy with a car that had even less cargo room than the Vega. But it has other properties that departed from most American products with Harry Truman's White House piano recitals. Take our cover girl, Vikki Taylor. I can't help wondering if she'd look quite as happy standing alongside one of those Detroit mammoths that boasts enough carrying space to tote two mothers-in-law plus all the dining room furniture. A gorgeous gal goes with a gorgeous car. Or, as Paul Whiteman often says, "The better the cast, the better the theater has to be."

The Facel-Vega has a lot of little niceties rarely found in cars as sporty as this one: power disc brakes, power windows, an excellent radio and a real heater. Even air conditioning is available, although our test car didn't have it. The suspension is coil spring with wishbones up front and leaf springing in the rear, plus excellent shocks that cushion any hard bend or curve going. To make this car plow you'd have to remove one of the front wheels. Still, the ride isn't harsh, just quick. In normal tune this job can top 130 mph. With a Smokey Yunick full set-up (meaning a teardown, careful reassembly and tuning), if you can't get 150 mph out of this vehicle it's because you're chicken.

In summing up, the Vega is not a car that's going to sweep the family market like wildfire. It is a car that will appeal more to the sophisticated connoisseur than to the man who'd be afraid to show it to his boss, knowing the auditors would be rushed into the plant within the hour. This is a sporting piece of equipment that looks like money, which is exactly what it costs. You're not apt to see one racing at Bridgehampton or Sebring but guys who drive race cars at those places quite often arrive in Facel-Vegas. It is the perfect sportsman's car, with plenty of room for normal everyday gear, for the guy who still gets a kick out of driving a real automobile.

The kicks in driving, as most of us know only too well, have just about been eliminated from many of our domestic products.

In this day when sales pitches are directed at fuel economy, kiddies, bicycles, boat- and picnic-basket room, plus marshmallow softness in the ride, there is very little left for the guy who just likes to go out and take himself a drive. A great car is one that makes you want to get up at daylight and hit the highway. The Facel-Vega is not for Joe Everybody—it is a car to be appreciated as a remarkable and wonderfully satisfying road companion. •

Mind-Reading End Wars

[*Continued from page* 61]

ESP *does* work. But so far the power cannot be controlled. On some days ESP-gifted people exhibit remarkable abilities in experiments; on other days they fail dismally. If a way can be found to tame this force and put it to work, Dr. Rhine told MI, the benefits for the human race can scarcely be imagined.

[Editor's Note: Typical ESP experiments are done with a special deck of 25 cards—five bearing stars, five circles, five crosses, five squares and five wavy lines. The cards are shuffled carefully and the subjects try to guess their sequence as they are turned over. By pure guesswork, mathematicians say that an average subject would get five right out of the 25. (Make yourself an ESP deck and try.) But ESP-gifted persons get consistently higher scores.]

Many leading scientists agree with Dr. Rhine that ESP's existence is no longer in doubt. The unique force has many famed adherents, including Dr. Gardner Murphy, research director of the Menninger Foundation and former president of the American Psychological Association; Dr. Robert Thouless, former president of the British Psychological Society; and Dr. S. G. Soal, London mathematician now internationally known for his own ESP tests. America's greatest psychologist, William James, was convinced, as is also the world's greatest living psychiatrist, Dr. C. G. Jung of Switzerland.

There are many fantastic cases of ESP

[*Continued on next page*]

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in the records, which preceded and stimulated recent, more rigorously controlled experimental research.

For example, there is the authenticated story of young Laura Edmonds, pretty daughter of a prominent New York City judge, who was reading quietly one Sunday afternoon when a stranger dropped in to see her father. Laura had gone to a finishing school, where she had studied a little French. Besides English, this was the only language she knew. And she had never seen the caller in her life.

The visitor was a Greek. He was chatting with a group of other people in the judge's living room when Laura suddenly walked over and began talking to him—*in his native tongue!* She spoke excitedly and within a few moments, the newcomer was in tears. Laura had told him that his son had just died in Greece, 4,000 miles away.

Incredible fact No. 1—the young girl spoke fluently in a language she had never learned. Incredible fact No. 2—she knew about the death of the man's son, which was later confirmed. Said the judge following the amazing episode: "To deny the fact is impossible—I could as well deny the light of the sun. It took place before eight or ten educated and intelligent people."

How could Laura have performed the feat unless we accept the fact that some persons are gifted in an unexplained way to pierce the veil of the unknown?

In a more practical vein was the series of experiments performed by Mrs. Upton Sinclair, wife of the novelist, and a young American business man named Robert L. Irwin. Irwin sat in his Long Beach, Calif., home—Mrs. Sinclair, at the same time, was at her home in Pasadena, 30 miles away.

Seven separate times, Irwin made a drawing on a sheet of paper. Seven times, Mrs. Sinclair lay on a couch and concentrated—then got up and made drawings corresponding to mental impressions she received.

The first time, Irwin drew a chair with horizontal lines at the back. Mrs. Sinclair first drew a chair with horizontal bars, then another chair with a set of vertical lines. She also said Irwin's drawing was on green paper and it was!

Irwin drew a watch. Mrs. Sinclair drew a round flower, saying: "The petals are not petals but wire and should be uniform . . . I see it shining as if it is metal."

The amazing finale: Irwin drew a circle with a compass and Mrs. Sinclair drew a series of concentric circles, with a spreading stain of blood, writing: "All this dark, like a stain—feel it is blood, that Bob is ill." At exactly that time, he was having a hemorrhage!

These are but two of the reported cases in which a human ability beyond the senses has apparently played a part and which led up to the controlled laboratory experiments reported in the Journal of Parapsychology (now in its 23rd year). But how could such an ability be harnessed to the needs of national defense and what would such a program cost?

An ESP-For-Defense research program wouldn't cast nearly as much as creation of the first atomic bomb, which involved a total expenditure of $2,233,000,000. Dr. Rhine estimates that the cost of just one experimental bombing plane could finance a sound research project aimed at discovering the knowledge needed for the practical use of ESP.

Dr. Rhine checks off these plus factors which the research scientists will have to start with:

ESP is an actual human ability, proved many times over.

ESP can operate regardless of any type of physical barrier yet tested. Experiments have shown that individuals can be aware of things in the next room, next block or across the world. They can "see" through walls, curtains and beyond oceans.

ESP can sometimes work upon demand! Many times persons gifted with ESP, when told to read the order of 25 concealed cards, have demonstrated they could do so in an unbroken series of successes. These basic facts may be found in Parapsychology by Rhine and Pratt (C. C. Thomas, Springfield, Ill.).

But there is one major minus element—science must be able to control ESP and *know beyond any doubt that the information received through its powers is absolutely right.* Dr. Rhine reasons that the missing links ought to be discoverable, as all knowledge should be, "if the proper effort were put into getting it."

The actual operation of ESP as a weapon to defend America, once it was perfected

would be unique in the history of wars and national preparedness. Dr. Rhine prefers not to speculate on its practical applications but MI spoke to a number of other experts in the field and the following fascinating picture emerged. They emphasized that while this must be considered in the realm of speculation, it is no more incredible than any educated guessing in the scientific world today.

To begin with, there would be no need to plant spies inside enemy or hostile nations because, as mentioned above, ESP vaults space barriers with ease.

Once ESP can be controlled, a training program could be set up, drilling specially gifted individuals. They would learn not only how to utilize their powers but all about military matters as well. Then trained personnel could be attached to the counter-intelligence units of the Army, Navy and Air Force.

These services would maintain some ESP men at headquarters and disperse others among the various commands. For example, ESP officers could be attached to a divisional headquarters in the field, just as a G2, or Intelligence, man is today. ESP officers could be stationed on each warship and at each air base.

In addition, an especially trained unit of the country's finest ESP personnel would be attached to the Central Intelligence Agency, reporting directly to the agency's chief.

These men, wherever they are stationed, would function as the eyes and ears of the nation, picking up any vital information which could be of value in maintaining the peace or winning a war, should one come.

In the field, ESP men might be assigned to ferret out secret enemy troop movements or the timing of attacks by "reading" enemy battle plans or actually "hearing" the decisions made at enemy staff conferences. Aboard a battleship, ESP men could be ordered to discover the

[*Continued on next page*]

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location of enemy submarines. At an air base, instructions would go out for ESP to spot secret missile launching centers.

A man gifted with this super-intelligence could go about his task in a number of ways. Here are some possibilities offered by ESP experts, based on progress which has already been made along these lines:

Hypnosis could be utilized because tests have proven that ESP powers are intensified while the subject is in the trance state. Under a hypnotic spell, for example, an ESP man could be told: "Go to the enemy's headquarters. What do you see there? Is there a map on the wall, are there battle plans any place? Do you see anything that would help us?" Once the force has been perfected and controlled, the subject will "go" as directed and tell what he sees. And since he will also be trained in military tactics, nothing of importance will escape his scrutiny.

Another method could involve the use of drugs which sharpen perception and permit the imagination to roam unfettered. Dr. Osis of the Parapsychology Foundation reports new experiments with a drug called Mescaline about which Aldous Huxley wrote so glowingly in a book some years ago. Huxley said the drug created remarkable sensations. Subjects tested with it only this past winter reported seeing bright, beautiful images in glorious colors and felt their imaginations soaring. "In such a state," Dr. Osis points out, "ESP may be able to ride in on the images if we are dealing with an ESP-gifted subject."

But the practical applications of ESP, however fascinating it may be to conjecture upon them, must wait until the research scientists can come to real grips with this unknown force, refine it, subdue it and make it work for peace and for the benefit of all mankind.

Would our leaders welcome the development of ESP as a weapon in the fight for a durable peace? Perhaps the best answer to that is a direct quote from Secretary of State Christian A. Herter. On his return from a Big Four parley in Paris, Herter was asked what he thought of the chances of accord with Russia on the Berlin question. "If I knew what frame of mind the other fellow was in, I could answer that better," he said. ESP would be the best way to know the other fellow's frame of mind. It is a military-political tool we ignore only at our peril. •

The Small Car Story

[*Continued from page* 73]

ried in the smoothest mounting ever devised for a two-cylinder motor. The rugged 29-cu. in. mill develops 16 hp, gets about 50 mpg and unwinds at 60 mph. The little two-door rig totes four people and has a wheelbase of 72 in.

The same mechanical parts are also used on the Bianchina, a little two-seat coupe with custom finish produced by Bianchi.

Citroen, in France, is still unable to meet all demands for their ugly but rugged 2CV which has been hailed as the most original design since the Model T Ford. All-independent suspension, inter-connected between front and rear, gives smooth riding on roads or across country such as few cars of any size can equal. The OHV, flat-twin, 25-cu. in. engine driving the front wheels is throttled down to 12 hp to guarantee long-life at top 55-mph speed. This French beetle has a 94-in. wheelbase, weighs 1,125 lbs. and can carry four comfortably on its seats made with rubber bands on a tubular frame. It gets about 65 mpg.

Renault 4CV is the squat and reliable little sister of the more glamorous Dauphine. It has a 45-cu. in. water-cooled rear engine that develops 28 hp and pushes it along at up to 70 mph. Gas consumption ranges above 40 mpg and the 1,150-lb. French import handles well on the road.

Frisky is a British car that has recently reached our shores. It comes in both coupe and convertible which retail at about $1,395. A sport version is called the Sprint. The coupe rides on a 60-in. wheelbase. The two-door, two-passenger car has a 19-cu. in. engine, grinds out 16 hp and travels 60 miles on a gallon. Top speed is 51 mph. The car weighs only 756 lbs.

The compact car makers are also considering the economy sports enthusiasts. The Austin-Healey Sprite with a 57-cu. in., in-line-four-cylinder, OHV water-cooled mill boasts 42 hp. The two-passenger sports car can hit 84 mph and will get up to 40 mpg. It has an 80 in. wheelbase, is 142 in. long and weighs 1,314 lbs.

Berkeley, another British sportster, is unique with its unit body-chassis in resin-bonded fiber glass reinforced by light alloy. A 30-cu. in., three-cylinder, two-stroke engine mounted transversely drives the front wheels. It rolls on a 70-in. wheelbase, puts out 30 hp and gets up to 60 mpg. Top speed is a shade over 80 mph for this 600-pounder.

DAF is Holland's entry into the small, small car market. It is not yet being brought into the U.S. but is slated to be delivered in August. It is the smallest car built with automatic transmission. The engine is a horizontally-opposed twin-cylinder, four-stroke, OHV job that is air-cooled. The 36-cu. in. mill develops 22 hp, delivers 40 mpg and travels at a top speed of 56 mph. Wheelbase is 81 in., length 142 in. It will be priced under $1,500 when it is imported.

Vespa 400 is another tiny car scheduled for U.S. consumption sometime this year. The French car is very close to the Fiat in size, shape, performance and accommodation. It will probably sell for under $1,100 when it arrives.

The well-known Messerschmitt with tandem seats under a plastic dome is no longer being brought into the U.S. but plans are afoot to bring the single-cylinder, two-stroke engine midget back to America in the near future.

Zundapp Janus may also be brought to the U.S. again. The unique Janus has two back-to-back seats and doors at each end. The one-cylinder, two-stroke engine shares the space under the seats with the spare wheel and fuel tank. It is surprisingly lively despite its tiny 15-cu. in. engine. The rear seats on this one lift out to reveal a big cargo space or all seats can be folded to form a camp bed.

The egg-shaped Nobel 200 (see page 80) is a two-door British buggy which may also soon be imported to the U.S. Powered by a 12-cu. in. Sachs single-cylinder, two-stroke engine that is air-cooled, this little car develops ten hp and will run 80 to 90 miles on a gallon of gas. The 126-in. bug has a wheelbase of 81 in. and room in the back seat for the kids.

The New York POE price will be about $1,100 when it is sold here. A kit for do-it-yourself fans is also planned. The kit

[*Continued on next page*]

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would allow you to buy the car for only $895 and put it together yourself in 90 to 100 hours.

Competition is going to be tough, for the small, small cars have to compete against each other and with second-hand models of larger cars. But you'll probably be seeing a lot more of them. They are, like their successful bigger brothers, here to stay. •

Money-In-A-Minute

[*Continued from page* 67]

school, graduations, etc. All are good bets.

As far as the camera on the job goes, look for situations in which a picture can lead to some simplification, time-saving or increase in accuracy. What record-keeping procedures could be eliminated with photographs? What protection can a firm gain by having photos? For example, some companies take minute-photos of merchandise packed in trucks and railroad cars to prove that it was properly loaded in case there should be any damage claims later on.

Check also to see where photos may help with sales. A number of auto dealers take snaps of interested prospects standing in front of cars and mail the photos to them when they leave the showrooms. A boat dealer in the East takes photos of prospects at the tillers of sailboats he hopes to sell them. Techniques such as these often clinch on-the-fence sales.

When it comes to selling pictures, don't forget to dress them up. Inexpensive photo mounts with corner-holding tabs can be bought in any photo supply house. A slick three-fold mount can be ordered from the camera maker. Another sales gimmick is the special postcard mount. With these all you have to do is peel off a protective film and press the print in place. The other side is already set up for address, stamp and message. Use of these cards is suggested at beaches and other vacation spots where customers may want to mail photos.

Your prices for the photos you take should include film, mounts, flash bulbs and any extras, such as transportation. Add an allowance for spoiled pictures and then top it off with your profit margin. The selling price of your pictures may run around 75 cents, or less if you are sure of volume sales. It could also go up to $1.50. Don't ever undercharge. It's difficult to increase your customer's price if you originally pegged it too low.

Today's Polaroid Land Cameras—there are five models—range in price from about $73 for the model 80A to $169 for the deluxe model 110A. All models have multi-speed shutters and all are internally synchronized for flash. The three most expensive models have coupled rangefinders—a feature that is virtually a necessity if you want to use the camera for making money.

Print size runs from 2¾x3½ in. in the low-priced 80-A to 3¼x4¼ in the others. Several types of eight-exposure roll films are available with prices from $1.64 to better than $2.29. There's also a projection type film for making slides which sells for $3.49.

There is also a battery-condenser type flash gun which sells for about $16 complete with a special bounce-flash bracket. Specially designed exposure meters are available at $14.50 and $16.95, as is a print copier which fits all models and lists for $29.95.

A recent addition to the Polaroid Land Camera line makes one-minute photography possible with the popular 4x5 press-type Speed Graphic. This is a special holder designed to fit the Graphic which can be loaded with a new and improved photo-in-a-minute film. These holders retail for $49.95; the film costs $6.22 per box of 12 or $7.31 per box for a special, professional-type film.

That's the story on how to earn extra cash with the 60-second camera. How much you can make is up to you. Who knows? You may become the first picture-in-a-minute millionaire! •

Fun Of Houseboating

[*Continued from page* 57]

Houseboat owners in a warm climate can enjoy living aboard all year. In many parts of the north, however, ice, storms and rough water make year-round living impractical. The boat should be taken out of the water where lakes and rivers freeze. In any event it's a good idea to remove the houseboat from the water once a year to repaint the hull.

Houseboat living costs are small when compared with a full-size house. If you

don't own any waterfront property you can tie up to a commercial dock at about $1 per foot per month. Electricity, fuel for warmth, water heating and cooking are far from exorbitant and make the day-to-day expenses of houseboat living one of its most attractive features.

Houseboats are at their best on inland waters. They are *not* designed for off-shore cruising. No one knows how many houseboats are now in use but some of the largest concentrations of houseboating families are found in the South and Midsouth where big man-made lakes provide excellent boating waters. There are thousands of recently converted houseboating families on the rivers of the Mississippi Valley. The story is similar in the East.

If you own a houseboat you can change your homesite at will. You can, as some people do, keep it moored through the rough months, go north with the coming of spring and adapt your life to a floating home. You can also use your boat for weekend parties and, like some city dwellers, stay tied up to the dock.

One of the recent developments in the houseboat picture is the establishment of houseboat rentals. Dock operators purchase a few houseboats and rent them out by the day or week to fishermen or vacationing families. Properly operated, the plan offers a profit to the owner and a chance for the potential buyer to try houseboat living before investing in one. The best way to locate houseboat rentals is through the manufacturers. Rates vary from $100 to $250 a week for family size boats.

Some manufacturers are now offering houseboat kits so the buyer can, by doing part of the building himself, get a family houseboat at a lower price. One of the larger houseboat builders now offers steel hulls for either a 24 or 32-ft. boat in addition to his regular models.

Houseboat manufacturers now offer a

[*Continued on next page*]

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Hot Weather Fishing

[*Continued from page* 82]

that exceptionally high or low barometer readings make the swim bladders of fish contract or expand causing physical discomfort. Then the fish might not feel any more like eating than you might if you suffered a severe headache. But I don't believe moderate changes in air pressure make much difference.

Take the midsummer shower that raises brooks and rivers. Surely the barometer is below normal during such storms. But what better time is there for catching bass and trout than when the waters are on the rise? And where's the wind? Usually from the east or northeast. This knocks the daylights out of another sacred cow—the idea that fish won't bite on an east or a north wind. I've caught boatloads of trout, land-locked salmon, bass and walleyes in these winds.

Rain in midsummer does two things that interest fish very much. It cools the water and it washes food into lakes, rivers and streams. Sometimes the biggest old brown trout in a river will run up swollen feeder streams to gorge themselves on worms, insects, drowned mice and birds and all sorts of other exciting tidbits. Smallmouth bass come out of hiding in rivers to forage close to the banks for food. In lakes, trout, salmon and bass are apt to feed close to the surface along the shores. But where are most of the anglers then? Inside sitting around the fire keeping warm and dry, and probably cussing the weather. Where are the ten per cent who catch 90 per cent of the fish? Out fishing their heads off and having the times of their lives, thankful for the rain. They are dressed in the best rain gear they can buy because they believe it is as much a part of their fishing equipment as rods and reels.

Suppose it doesn't rain? Then depend upon a stream thermometer to tell you when to fish. Trout and walleyes bite best

water temperatures between 60° and 0° F, smallmouth bass between 60° and 5°, largemouth between 65° and 80°, ickerel between 60° and 75°, northern ike between 60° and 78°.

During the heat of day, fish lie deep in ples. Fish the deep holes if you must h during daylight hours. Find them ually near drop-offs from cliffs, weed eds, sand and gravel bars and rocky reefs. art fishing at about 15 feet, then fish ve feet deeper every few minutes till you d your customers.

In fishing streams and rivers during aylight hours in midsummer, work the eep holes, stretches that lie in deep shade, e pockets of long riffles and rapids where e oxygen content of the water is higher.

If you want to hit the jackpot on your hing vacation this summer, fish when e water temperature is right, even if this e midnight as it surely will be in many rts of the country. In northern and rthwestern mountain country, waters ol rapidly as the sun goes down. I have hed Adirondack rivers all day without rise of a trout over eight inches in midmmer. Then suddenly, at about 10 p.m., ve seen 12- to 20-inch trout begin to feed ll up and down the river.

Practically the same thing has happned to me on bass and walleye rivers d lakes all over the country. Feeding eriods usually last from one to two or ore hours, then shut off abruptly as the ater chills below the optimum for trout eding. When this happens, anglers going ut at dawn will find poor fishing because e waters will be too cool. The next feedg period will be along about eight or just bout breakfast time. And this'll be a ighty short period.

During very hot spells, when the heat ntinues long into the night, dawn or even ut before dawn becomes the feeding me. During unusually cool periods, hich sometimes come along in the north ven in August, the fishing may shift to idday or even afternoon. During averge midsummer weather, bass activity ually begins around 10 p.m.

Wherever you go this season, be sure check the game laws before you leave ome. A few states consider night fishing crime. Better vacation somewhere else r the best summer fishing. •

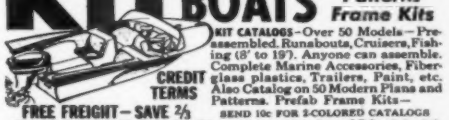

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Table-Top Telescope

[*Continued from page* 158]

(there are four) take the geometric sh of a trapezoid. This arrangement results a rigid yet quickly adjustable mounti The completed 'scope has a quick set- and break-down. A single bolt conne the mounting to the tripod, removing t wing nut collapses the mounting.

The business end of the instrume mounts the monocular less its objecti There are two focusing adjustments, one course is the eyepiece of the monocul The other, a coarser adjustment for rou focusing, is part of the monocular mou ing.

The drawings and accompanying phot will give you a good picture of how the i strument is built and put together. T very first thing upon receiving the cone to remove and strip the unit of all needle extras, both on and inside the cone. R moval of this paraphernalia will also lesse its weight. Also, remove the diaphrag from the lens assembly. With all th done, you will have a 24-inch focal leng lens with four inches of clear apertur mounted in a metal cone.

Start construction with the tripod. Th removable legs are ten inches long an are made from ¾-inch diameter aluminu tubing. Rubber crutch tips cushion th legs. Lay out the two disks on half-inc aluminum stock. Drill a half-inch pivo hole in the center of each plate. Drill an tap the holes in both places as indicated i the drawings.

The tripod leg retainers are made fro ¾-inch diameter aluminum. Drill and ta 10x24 holes, as shown. The tubular leg should be a slip fit into the complete adapters. Bolt these units to the tripod dis with three 10x24, half-inch Allen-hea bolts.

The yoke bearing blocks are cut fro half-inch aluminum. The tube for the yok can be easily bent by filling it with fin sand and adding water to pack the san tightly. Plug the ends with corks and pro ceed to bend. When bending is completed sluice out the sand with running water.

The two small front forks are machine from mild steel. Mount one on the len cone and the other on the turntable. Be tween these two, mount the front le

ch is cut from quarter-inch aluminum ck. Wing bolts and wing nuts secure se hinge points.

Next, mount the quarter-inch bolt sup- rt rod for the monocular. This arrange- nt allows you to position the eyepiece embly in order to "bracket" the point of us. Three steel ball bearings between disks steady the 'scope and make for ry easy rotation.

To complete the telescope, paint all parts ull black, first masking all hinge points. final assembly all moving parts should given a dab of heavy motor oil. The ope, using any monocular with a half- h focal length eyepiece, puts this instru- nt in the 45 to 50 power class, an excel- t instrument for viewing the moon.

—*Paul J. Palenek*

Portaboat

[*Continued from page* 114]

ebolts which fit into the oarlocks should slipped on before this is done. The eye- lts, of course, are not welded to the pipe it would be difficult to slip them into e oarlocks. However, their travel should limited by spots welded on the pipe so t the side motion of the boat on the me will be limited to a fraction of an h. A coupling on the front pipe makes possible to use standard right-hand reads when tightening up all connec- ns. All the joints can be welded when e wheels are level and parallel with the t in a trailing position.

For trailing behind a car, a large eye- lt is installed at the bow of the boat d a snap hook, welded to an eyebolt, is talled on the bumper of the car. When ese are coupled, and a safety chain is ded, you're ready to go. Remember, wever, that your Portaboat is designed haul a light boat, not cargo—and stick to od roads. When you get to the water, u can unhook from the car and wheel ur boat right in. Then you can detach e Portaboat and leave it behind or even it up and bring it along on short runs. •

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- ☐ Air Conditioning
- ☐ Architecture
- ☐ Arch. Drawing and Designing
- ☐ Building Contractor
- ☐ Building Estimator
- ☐ Carpenter Builder
- ☐ Carpentry and Millwork
- ☐ Carpenter Foreman
- ☐ Heating
- ☐ Painting Contractor
- ☐ Plumbing
- ☐ Reading Arch. Blueprints

ART
- ☐ Commercial Art
- ☐ Magazine Illus.
- ☐ Show Card and Sign Lettering
- ☐ Sketching and Painting

AUTOMOTIVE
- ☐ Automobile
- ☐ Auto Body Rebuilding and Refinishing
- ☐ Auto Engine Tuneup
- ☐ Auto Technician

AVIATION
- ☐ Aero-Engineering Technology
- ☐ Aircraft & Engine Mechanic

BUSINESS
- ☐ Accounting
- ☐ Advertising
- ☐ Business Administration
- ☐ Business Management
- ☐ Cost Accounting
- ☐ Creative Salesmanship
- ☐ Managing a Small Business
- ☐ Professional Secretary
- ☐ Public Accounting
- ☐ Purchasing Agent
- ☐ Salesmanship
- ☐ Salesmanship and Management
- ☐ Traffic Management

CHEMICAL
- ☐ Analytical Chemistry
- ☐ Chemical Engineering
- ☐ Chem. Lab. Technician
- ☐ Elements of Nuclear Energy
- ☐ General Chemistry
- ☐ Natural Gas Prod. and Trans.
- ☐ Petroleum Prod. and Engr.
- ☐ Professional Engineer (Chem)
- ☐ Pulp and Paper Making

CIVIL ENGINEERING
- ☐ Civil Engineering
- ☐ Construction Engineering
- ☐ Highway Engineering
- ☐ Professional Engineer (Civil)
- ☐ Reading Struc. Blueprints
- ☐ Sanitary Engineer
- ☐ Structural Engineering
- ☐ Surveying and Mapping

DRAFTING
- ☐ Aircraft Drafting
- ☐ Architectural Drafting
- ☐ Drafting & Machine Design
- ☐ Electrical Drafting
- ☐ Mechanical Drafting
- ☐ Sheet Metal Drafting
- ☐ Structural Drafting

ELECTRICAL
- ☐ Electrical Engineering
- ☐ Elec. Engr. Technician
- ☐ Elec. Light and Power
- ☐ Practical Electrician
- ☐ Practical Lineman
- ☐ Professional Engineer (Elec)

HIGH SCHOOL
- ☐ High School Diploma
- ☐ Good English
- ☐ High School Mathematics
- ☐ High School Science
- ☐ Short Story Writing

LEADERSHIP
- ☐ Industrial Foremanship
- ☐ Industrial Supervision
- ☐ Personnel-Labor Relations
- ☐ Supervision

MECHANICAL and SHOP
- ☐ Diesel Engines
- ☐ Gas-Elec. Welding
- ☐ Industrial Engineering
- ☐ Industrial Instrumentation
- ☐ Industrial Metallurgy
- ☐ Industrial Safety
- ☐ Machine Shop Practice
- ☐ Mechanical Engineering
- ☐ Professional Engineer (Mech)
- ☐ Quality Control
- ☐ Reading Shop Blueprints
- ☐ Refrigeration and Air Conditioning
- ☐ Tool Design ☐ Tool Making

RADIO, TELEVISION
- ☐ General Electronics Tech.
- ☐ Industrial Electronics
- ☐ Practical Radio-TV Eng'r'g
- ☐ Practical Telephony
- ☐ Radio-TV Servicing

RAILROAD
- ☐ Car Inspector and Air Brake
- ☐ Diesel Electrician
- ☐ Diesel Engr. and Fireman
- ☐ Diesel Locomotive

STEAM and DIESEL POWER
- ☐ Combustion Engineering
- ☐ Power Plant Engineer
- ☐ Stationary Diesel Engr.
- ☐ Stationary Fireman

TEXTILE
- ☐ Carding and Spinning
- ☐ Cotton Manufacture
- ☐ Cotton Warping and Weaving
- ☐ Loom Fixing Technician
- ☐ Textile Designing
- ☐ Textile Finishing & Dyeing
- ☐ Throwing
- ☐ Warping and Weaving
- ☐ Worsted Manufacturing

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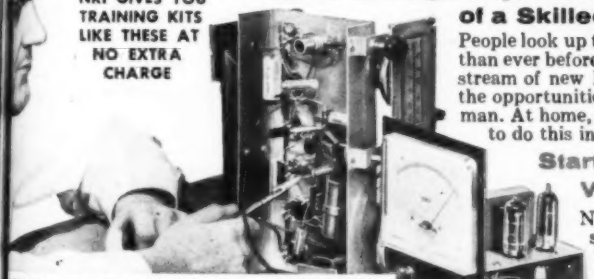

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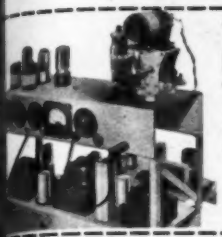

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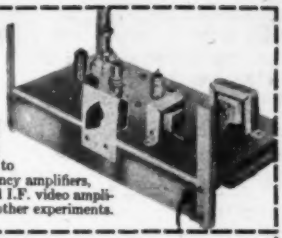

N.R.I. sends kits of parts to build this Signal Generator. You get practical experience, conduct tests to compensate Radio frequency amplifiers, practice aligning a typical I.F. video amplifier in TV circuit, many other experiments.

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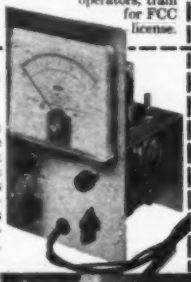

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as Chief Engineer Station KGCU in ...ha, N. D. I also ...my own spare time ...ss servicing high ...ency two-way com...ations systems." ...BARNETT, Bis...ck, North Dakota.

d for ...vements

...m doing very well ...pare time TV and ...io. Sometimes have ...e TV jobs waiting ...also fix car Radios ...ranges. I paid for ...vements out of earn...." G. F. SEAMAN, ... York, N. Y.

Own ...Business

...e have an appliance ...e with our Radio ...TV servicing, and ...TV repairs. During ...Army service, NRI ...ing helped get me ...rated job." W. M. ...DNER, Fairfax, ...h Dakota.

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